

RECORD OF DECISION

**OPERABLE UNIT 1
WEST GATE LANDFILL**

**NAVAL AIR STATION SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS**

**BRAC PMO NORTHEAST
U.S. NAVY**

September 2007

**Record of Decision
Naval Air Station South Weymouth
Table of Contents**

| <u>SECTION</u> | <u>PAGE</u> |
|------------------------------------------------------------------|--------------------|
| PART 1: DECLARATION | 1 |
| I. SITE NAME AND LOCATION..... | 1 |
| II. STATEMENT OF BASIS AND PURPOSE | 1 |
| III. ASSESSMENT OF THE SITE | 1 |
| IV. DESCRIPTION OF THE SELECTED DECISION..... | 1 |
| V. STATUTORY DETERMINATIONS..... | 3 |
| VI. ROD DATA CERTIFICATION CHECKLIST..... | 3 |
| VII. AUTHORIZING SIGNATURES..... | 3 |
| PART 2: THE DECISION SUMMARY | 1 |
| I. SITE NAME, LOCATION, AND DESCRIPTION..... | 1 |
| II. SITE HISTORY AND ENFORCEMENT ACTIVITIES..... | 1 |
| A. Site History | 1 |
| B. History of Investigations | 1 |
| C. History of CERCLA Enforcement Activities | 2 |
| III. COMMUNITY PARTICIPATION | 3 |
| IV. SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION..... | 4 |
| V. SITE CHARACTERISTICS | 5 |
| VI. CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES | 7 |
| VII. SUMMARY OF POTENTIAL SITE RISKS..... | 8 |
| A. Human Health Risk Assessment..... | 8 |
| B. Ecological Risk Assessment..... | 11 |
| C. Basis for Response Action | 13 |
| VIII. REMEDIATION OBJECTIVES..... | 13 |
| IX. DEVELOPMENT AND SCREENING OF ALTERNATIVES..... | 15 |
| X. DESCRIPTION OF ALTERNATIVES | 16 |
| A. WGL-1: No Action..... | 16 |
| B. WGL-2: Limited Action..... | 16 |
| C. WGL-3: Soil Cap..... | 17 |
| D. WGL-4: Flexible Membrane Liner (FML) Cover | 20 |
| E. WGL-5: Excavation and Offsite Disposal | 22 |
| F. WGL-6: Excavation and Containment at New Onsite Location..... | 25 |
| XI. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES | 28 |
| XII. THE SELECTED REMEDY..... | 32 |
| XIII. STATUTORY DETERMINATIONS | 40 |
| XIV. DOCUMENTATION OF NO SIGNIFICANT CHANGES | 41 |
| XV. STATE ROLE | 42 |
| PART 3: RESPONSIVENESS SUMMARY..... | 1 |
| I. STAKEHOLDER ISSUES AND NAVY RESPONSES | 1 |
| II. TECHNICAL AND LEGAL ISSUES | 1 |
| III. COMMENT RESPONSES | 1 |
| A. Written Comments and Responses..... | 2 |
| B. Verbal Comments and Responses..... | 19 |

**Record of Decision
Naval Air Station South Weymouth
Table of Contents**

TABLES

| <u>NUMBER</u> | | <u>PAGE</u> |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 2-1 | Summary of Operable Units..... | 43 |
| 2-2 | Potential (i.e., Low-Level) Threats | 44 |
| 2-3 | Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations | 44 |
| 2-4 | Potential Carcinogenic Toxicity Data Summary from Human Health Risk Assessment | 45 |
| 2-5 | Potential Non-Carcinogenic Toxicity Data Summary from Human Health Risk Assessment Chronic Exposure through Ingestion..... | 46 |
| 2-6 | Potential Non-Carcinogenic Toxicity Data Summary from Human Health Risk Assessment Subchronic Exposure through Ingestion | 47 |
| 2-7 | Summary of Human Health Risk Assessment..... | 48 |
| 2-8 | Summary of Chemicals of Concern Used in Ecological Risk Assessment - Surface Soil..... | 49 |
| 2-9 | Summary of Ecological Risk Assessment Measurement and Assessment Endpoints – Surface Soil, Hydric Soil, Sediment, Surface Water, and Biota Tissue | 50 |
| 2-10 | Summary of Remedial Alternatives and Their Major Components..... | 54 |
| 2-11 | Detailed Comparison of Remedial Alternatives | 55 |
| 2-12 | Estimated Costs Associated with the Selected Remedy as Presented in the FS | 56 |
| 2-13 | Groundwater Remedial Goals..... | 58 |
| 2-14 | Surface Soil Remedial Goals | 59 |

FIGURES

| <u>NUMBER</u> | | <u>PAGE</u> |
|----------------------|-----------------------------------|--------------------|
| 2-1 | Site Locus Map | 60 |
| 2-2 | Conceptual Site Model..... | 61 |
| 2-3 | West Gate Landfill Site Map | 62 |

APPENDICES

| | |
|---|----------------------------------------------------------------------------------|
| A | Massachusetts Department of Environmental Protection Letter of Concurrence |
| B | References |
| C | Glossary |
| D | Administrative Record Index |
| E | E.1 Public Comments on the Proposed Plan for the West Gate Landfill |
| | E.2 Transcript of Public Hearing on the Proposed Plan for the West Gate Landfill |
| F | ARAR Tables |

**Record of Decision
Naval Air Station South Weymouth
Part 1: Declaration**

PART 1: DECLARATION

I. SITE NAME AND LOCATION

Naval Air Station South Weymouth
1134 Main Street
Weymouth, Massachusetts 02190
MA2170022022
Operable Unit 1 – West Gate Landfill

II. STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for Operable Unit 1 (OU-1), the West Gate Landfill, at the Naval Air Station (NAS) South Weymouth, Weymouth, Massachusetts, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 USC § 9601 *et seq.*, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300 *et seq.*, as amended. The regulatory program performed under the context of these combined laws and regulations is commonly referred to as “Superfund.”

This decision is based on the Administrative Record, which has been developed in accordance with Section 113(k) of CERCLA, and which is available for review at the Navy’s Caretaker Site Office at the NAS South Weymouth in Weymouth, Massachusetts. Public information repositories are also kept at the Tufts Library in Weymouth, Massachusetts; the Abington Public Library in Abington, Massachusetts; the Hingham Public Library in Hingham, Massachusetts; and the Rockland Memorial Library in Rockland, Massachusetts. The Administrative Record Index (Appendix D) identifies each of the items comprising the Administrative Record upon which the selection of this decision is based.

This decision had been selected by the Navy and the U.S. Environmental Protection Agency (EPA). The Massachusetts Department of Environmental Protection (MADEP) statement on the selected remedy is presented in Appendix A.

III. ASSESSMENT OF THE SITE

The selected response action is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

IV. DESCRIPTION OF THE SELECTED DECISION

This Record of Decision (ROD) sets forth the selected remedy for OU-1, the West Gate Landfill, at NAS South Weymouth, which involves the construction of a soil cover over the landfill to meet Commonwealth of Massachusetts solid waste regulations and federal regulations for PCB-impacted soils, long-term monitoring (LTM) as required under state landfill closure regulations, and institutional controls regarding the former disposal area and the groundwater conditions at the site. Refer to Part 2 (The Decision Summary), Section XII (Description of the Selected Remedy), for a detailed description of the selected remedy.

The selected remedy is a comprehensive approach for the West Gate Landfill that addresses all current and potential future risks identified at OU 1, which include human and ecological risks from PCBs, metals, dioxins, PAHs, and pesticides, primarily in surface soil. The selected remedy achieves applicable state and federal regulations, including state landfill closure requirements and federal requirements for capping PCB-impacted soils. The selected remedy also includes removal of debris from the adjacent wetlands, placement of the debris on the landfill, restoration of areas of the wetlands affected by this removal,

Record of Decision
Naval Air Station South Weymouth
Part 1: Declaration

construction of a soil cover over the former 5.25-acre disposal area, implementation of institutional controls, and performance of long-term groundwater monitoring and site maintenance (collectively referred to as LTM). These remedial measures will eliminate human and ecological exposure to the surface of the landfill, minimize erosion and deposition of surface soil and landfill material into the adjacent wetlands, remove visible landfill material from the palustrine wetlands adjacent to the WGL, restore the wetlands impacted by the removal, meet state regulations regarding closing a landfill, and eliminate human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards, or posing an unacceptable risk to human health.

The major components of this remedy are:

- Prior to implementing the selected remedy, a pre-design investigation (PDI) will be conducted to collect information that will be used to design an effective and protective cover system.
- Conducting compaction and related testing within the landfill area to properly design and construct a soil cover (i.e., as a part of the design and implementation process).
- Removing landfill-related wastes from the adjacent wetlands and placing on the landfill.
- Clearing the landfill area of trees, brush, and exposed rubble, removing tree stumps, and grading the site.
- Constructing a soil cover on the site meeting Commonwealth of Massachusetts solid waste regulations and federal regulations [Toxic Substances Control Act (TSCA)] for PCB-impacted soils. The design goal for the soil cover is to eliminate direct contact with landfill materials.
- Restoring the wetland area that is disturbed during remediation activities.
- Implementing an institutional control to restrict invasive activities (e.g., digging) on the surface of the site.
- Preventing human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to humans.
- Conducting long-term groundwater monitoring and site maintenance.
- Conducting a review of the site every five years.

The components of the PDI are summarized in Part 2, Section XII. Details on the scope and duration of LTM, as well as details on the administration of land use controls (LUCs), such as institutional and/or physical controls, will be provided in the remedial design documentation of the LTM plan and LUCs. Details of the wetlands restoration plan will be included as part of the Remedial Design. Further design component details, such as soil cap thickness required to meet state solid waste and federal regulations for PCB-impacted soils, and compaction of disposed materials to provide for cap stability, will be refined during the design and implementation process to the extent necessary to comply with engineering standards and state requirements and approvals.

OU-1, the West Gate Landfill, is one of several operable units at NAS South Weymouth. The West Gate Landfill has been addressed independently from the rest of NAS South Weymouth so that the Navy can proceed with closure of this site as soon as it has met the requirements of the CERCLA, or Superfund, process. The remedy selection decision for the West Gate Landfill is not expected to have an impact on the strategy or progress for the rest of the sites at NAS South Weymouth. Additional details on the strategy and schedule for the remediation of NAS South Weymouth are in the Site Management Plan (October 2006).

The selected response action addresses potential low-level threat wastes at the site by:

- Removing landfill-related wastes from adjacent wetlands,
- Eliminating direct soil contact by humans and environmental receptors and eliminating landfill leachate by capping, and
- Implementing institutional controls to prevent disturbance of the cap.

Record of Decision
Naval Air Station South Weymouth
Part 1: Declaration

V. STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions to the maximum extent practicable.

Based on site conditions, the nature and extent of contamination, and the conservative assumptions used during the risk assessment, no treatment technologies were evaluated for the West Gate Landfill (refer to Section 4.2 of the Feasibility Study, Tetra Tech NUS, 2003). Only containment and removal technologies were deemed potentially applicable to the West Gate Landfill. Thus, the selected remedy does not satisfy the statutory preference for "treatment" as a principal element of the remedy.

Because this remedy will result in contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, and groundwater and land use restrictions are necessary, a review will be conducted within five years after initiation of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment. Details on the scope and duration of the 5-year reviews will be provided in the LTM plan for the West Gate Landfill.

VI. ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary (Part 2) of this Record of Decision.

- Chemicals of concern (COCs) and their respective concentrations;
- Baseline risk represented by the COCs;
- Cleanup levels established for COCs and the basis for the levels;
- Current and future land and groundwater use assumptions used in the baseline risk assessment and ROD;
- Land and groundwater use that will be available at the site as a result of the selected remedy;
- Estimated capital, operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected; and
- Decisive factor(s) that led to selecting the remedy.

Additional information can be found in the Administrative Record file for this site.

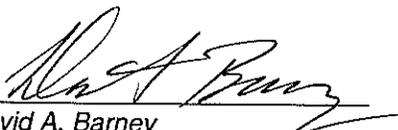
VII. AUTHORIZING SIGNATURES

This ROD documents the selected remedy, the construction of a soil cover over the former disposal area, institutional controls, and long-term monitoring at the West Gate Landfill, at the former NAS South Weymouth. This remedy was selected by the Navy and EPA. MADEP's statement on the selected remedy is presented in Appendix A.

**Record of Decision
Naval Air Station South Weymouth
Part 1: Declaration**

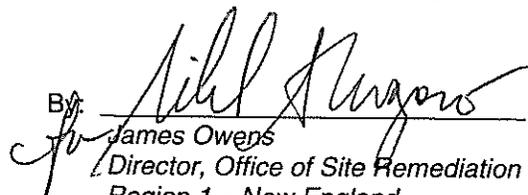
Concur and recommended for immediate implementation:

U.S. Department of the Navy

By: 
David A. Barney
BRAC Environmental Coordinator
NAS South Weymouth
BRAC PMO Northeast
U.S. Navy

Date: 9/20/2007

U.S. Environmental Protection Agency, Region 1

By: 
James Owens
Director, Office of Site Remediation and Restoration
Region 1 – New England
U.S. EPA

Date: 9-28-07

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

PART 2: THE DECISION SUMMARY

I. SITE NAME, LOCATION, AND DESCRIPTION

The NAS South Weymouth property is located primarily in the Town of Weymouth, Massachusetts (Figure 2-1), and portions of NAS South Weymouth extend into the adjacent Towns of Abington and Rockland, Massachusetts. The West Gate Landfill (WGL) is located within the Town of Weymouth. The majority of the property is currently owned by the U.S. Government and was historically operated by the U.S. Navy.

NAS South Weymouth was developed during the 1940s for dirigible aircraft used to patrol the North Atlantic during World War II. The facility was closed at the end of the war and was reopened in 1953 as a Naval Air Station for aviation training. NAS South Weymouth was in continuous use from that time until it was operationally closed on September 30, 1996, and administratively closed on September 30, 1997.

NAS South Weymouth was placed on the National Priorities List (NPL) in May 1994 by EPA pursuant to CERCLA. As such, cleanup of CERCLA sites at NAS South Weymouth proceeds under CERCLA, 42 USC § 9601 *et seq.*, as amended by SARA, and, to the extent practicable, the NCP, 40 CFR Part 300 *et seq.*, as amended. The Navy is the lead agency, and EPA provides oversight, for CERCLA activities at NAS South Weymouth. The Massachusetts Department of Environmental Protection (MADEP) also has assisted with regulatory oversight and guidance through their reviews of the IR Program documents. The U.S. Department of Defense (DoD) is the sole source of cleanup funding for the property. There are several operable units within the NAS South Weymouth NPL site (MA2170022022) that the Navy is addressing under CERCLA. This ROD relates to the WGL.

The WGL is the location of a former disposal site and was used primarily for domestic wastes such as glass bottles, empty metal and plastic containers, metal scraps, and occasionally other wastes generated onsite. The WGL is located at the western edge of the NAS South Weymouth property, west of Runway 17-35 and south of Trotter Road. The estimated area of the landfill is approximately 5.23 acres, with an approximate fill thickness of 10 feet. The approximate volume of fill within the landfill is estimated to be 85,000 cubic yards.

A more complete description of the WGL can be found in Section 3.0 of the Remedial Investigation (RI) Phase II Report (Tetra Tech NUS/ENSR, 2002).

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

A. Site History

The WGL was active for approximately 30 years, from the 1940s through 1972. The landfill was never capped; however, since 1972 it has become heavily overgrown with vegetation, brush, and trees. Materials observed at the site during environmental investigations included metal scraps, asphalt, bricks, concrete, plastic sheeting, bottles, cans, metal wheel rims, rubber pieces, tubing, hoses, glass, and other general debris. Large pieces of concrete and construction related debris were also observed.

There are no records of hazardous wastes regulated under Subtitle C of the Resource Conservation and Recovery Act (RCRA), being disposed of at the WGL. A more complete description of the WGL can be found in Section 3.0 of the Phase II RI Report (Tetra Tech NUS/ENSR, 2002).

B. History of Investigations

Previous investigations that have been conducted at the WGL are summarized below:

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

- **Installation Restoration (IR) Program, 1983.** In response to the growing awareness of the potential effects of hazardous materials on human health and the environment, the DOD developed the IR Program to investigate and cleanup potential problem areas created by historic activities at federal facilities. The IR Program was the catalyst for environmental investigations at NAS South Weymouth.
- **Preliminary Assessment (PA), Argonne National Laboratory, 1988.** The PA included a records search, interviews, and a site walkover. The purposes of the PA were to identify and evaluate past waste practices at NAS South Weymouth and make an assessment of the associated potential for environmental contamination.
- **Site Inspection (SI), Baker Environmental, Inc., 1991.** The SI included site walkovers, geophysical surveys, installation of groundwater monitoring wells, and the collection of soil, sediment, surface water, and groundwater samples at eight sites at the NAS South Weymouth property. The SI was conducted for screening purposes to assess the potential for contaminant migration, provide data for Hazard Ranking System (HRS) scoring, and to provide the information necessary to develop a comprehensive work plan for further study.
- **Phase I RI Study, Brown & Root Environmental, 1998.** The Phase I RI included a literature search, geophysical survey, soil-vapor survey, immunoassay testing, ecological assessment, test pit excavation, monitoring well, well point and piezometer installation, hydraulic conductivity testing, groundwater gauging and water level measurements, stream gauging, and surface soil, subsurface soil, groundwater, sediment, surface water sampling, and a human health risk assessment. This information was used to refine the Conceptual Site Model (CSM) and identify areas warranting further study.
- **Phase II RI, Tetra Tech NUS/ENSR, 2002.** The Phase II RI was conducted to address and fill data gaps from the Phase I RI and previous investigations, and to further verify the absence of hazardous substances within the landfill. The Phase II RI included further ecological assessment, groundwater gauging, water level measurements, surface soil sampling, subsurface soil sampling, groundwater sampling, sediment sampling, hydric soil sampling, surface water sampling, tissue sampling, and human health risk assessment.
- **Feasibility Study (FS), Tetra Tech NUS/ENSR, 2003.** The Navy prepared a FS to identify the remedial action objectives for the site, and to identify and evaluate cleanup alternatives to achieve the objectives.

C. History of CERCLA Enforcement Activities

In May 1994, NAS South Weymouth was listed on EPA's NPL indicating that the NAS South Weymouth property was a priority for environmental investigation and cleanup. Since then, environmental studies and activities at NAS South Weymouth have been conducted by the Navy in accordance with CERCLA and the NCP.

Based on the designation of the NAS South Weymouth property as an NPL site, a Federal Facility Agreement (FFA) was executed by the Navy and EPA. The FFA became effective in April 2000. This agreement established the Navy as the lead agency for the investigation and cleanup of designated sites within the NAS South Weymouth property, with EPA providing oversight. MADEP is not party to the FFA. In accordance with CERCLA and the NCP, MADEP has participated in ongoing discussions and strategy sessions, as well as provided oversight and guidance through their review of IR Program documents.

In accordance with the FFA, a Site Management Plan (SMP) with task schedules and deliverables is updated annually each June, and is published each October. The SMP serves as a management tool for planning, reviewing, and setting priorities for environmental investigative and remedial response activities

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

to be conducted at NAS South Weymouth. The SMP is available for review at the Tufts Library in Weymouth, Massachusetts; at the Abington Public Library in Abington, Massachusetts; at the Hingham Public Library in Hingham, Massachusetts; at the Rockland Memorial Library in Rockland, Massachusetts; and at the Department of the Navy, Caretaker Site Office, Weymouth, Massachusetts.

III. COMMUNITY PARTICIPATION

Throughout the site's history, community involvement has been ongoing. The Navy has kept the community and other interested parties apprised of site activities through informational meetings, fact sheets, press releases, public meetings, and regular contact with local officials. Also, the Navy meets on a regular basis to discuss the status and progress of the IR Program with the Restoration Advisory Board (RAB), which includes representatives from the neighboring community. Representatives from the Navy, EPA Region I, MADEP, and local government have attended public meetings and hearings. Below is a brief chronology of public outreach efforts regarding the WGL.

- In September 1995, the Navy initiated a series of public meetings, at which the RAB process was explained and community members were asked to join the RAB. A sufficient number of volunteers were assembled and RAB meetings began in March 1996. Since that time, RAB meetings have been held on a monthly basis (or as needed) to keep the RAB and local community informed of IR activities. These meetings have provided updates of IR activities throughout the process.
- In July 1998, the Navy released a community relations plan that outlined a program to address community concerns and keep citizens informed about and involved in remedial activities.
- The North and South Rivers Watershed Association (NSRWA) applied for and was awarded a Technical Advisory Grant (TAG) from the EPA and MADEP. This TAG allowed the NSRWA to hire a Technical Advisor to review documents, attend meetings, and prepare evaluation reports. The Technical Advisor attended most RAB and technical project meetings during that time.
- The RAB for NAS South Weymouth applied for and had been granted a Technical Assistance for Public Participation (TAPP) grant from the DoD. This grant had allowed the RAB to obtain technical assistance from experts in the environmental field to help them understand the environmental cleanup programs at the base.
- Several fact sheets have been prepared about the NAS South Weymouth property during the course of investigation and study at the base. These fact sheets have been provided to the public mailing list for the NAS South Weymouth NPL site, and are listed in the Administrative Record (AR) index provided in Appendix D.
- The Navy published a legal notice announcing the availability of and public comment period for the Proposed Plan for the WGL in the Patriot Ledger on May 17, 2007; in the Weymouth News on May 16, 2007; and in the Rockland Mariner/Standard on May 18, 2007. In addition, the Navy provided copies of the Proposed Plan to the community mailing list maintained for the site, and placed a copy of the Plan at the Tufts Library in Weymouth, Massachusetts; at the Abington Public Library in Abington, Massachusetts; at the Hingham Public Library in Hingham, Massachusetts; at the Rockland Memorial Library in Rockland, Massachusetts; at the Department of the Navy, Caretaker Site Office, South Weymouth, Massachusetts; and the Navy's public website for environmental activities at the former NAS South Weymouth (<http://nas-southweymouth.navy-env.com>).
- From May 21, 2007 to June 20, 2007, the Navy offered the Proposed Plan, as well as associated documents in the Administrative Record, for public comment, in accordance with the requirements of the NCP and the SMP developed for the NAS South Weymouth Superfund

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

program. The Proposed Plan for the WGL included Navy's preferred remedial action alternative. Based upon verbal and written requests, the Navy granted a 15-day comment period extension, which closed the comment period on July 6, 2007. Written comments received during the public comment period are included as Appendix E.1.

- On June 14, 2007, the Navy held an informational meeting to present the Navy's Proposed Plan to the community. At this meeting, representatives from the Navy answered questions from the public. In addition, on June 19, 2007, the Navy held a public hearing, at which oral comments on the Proposed Plan were recorded for the record. A transcript of oral comments received at the public hearing is included as Appendix E.2.
- The Navy has provided responses to both written comments received during the comment period and oral comments received at the public hearing. These responses are provided in the Responsiveness Summary, which is included as Part 3 of this ROD.

In addition, the Navy is providing an index of the administrative record available for public review at several locations, including the Tufts Library in Weymouth, Massachusetts, the Abington Public Library in Abington, Massachusetts, the Hingham Public Library in Hingham, Massachusetts, the Rockland Memorial Library in Rockland, Massachusetts, and the U.S. Department of the Navy, Caretaker Site Office, Weymouth, Massachusetts (see Appendix D).

IV. SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION

As outlined in the FFA for NAS South Weymouth, there are several operable units (OUs) undergoing study and cleanup (as necessary) at the former base. WGL, OU-1, is one of the operable units (refer to Table 2-1) being addressed, and is the subject of this ROD. The remaining operable units are progressing through the CERCLA cleanup process independently from OU-1, and will be the subject of other RODs.

Regarding the other OUs, the Navy and EPA have selected the remedy for OU-3, the Small Landfill, in a ROD signed in March 2002; OU-4, the Fire Fighting Training Area, in a ROD signed September 2004; OU-8, the Abandoned Bladder Tank Fuel Site, in a ROD signed in March 2003; OU-2 and OU-9, the Rubble Disposal Area, in a ROD signed in December 2003; and OU-5, the Tile Leach Field, in a ROD signed in May 2006. The ROD for OU-3 stipulated No Further Action under CERCLA, with one year of groundwater monitoring. The ROD for OU-4 stipulated No Action under CERCLA. The ROD for OU-8 stipulated No Further Action. The ROD for OU-2 and OU-9 stipulated offsite disposal of PCB-impacted material from the wetlands, the construction of a soil cover over the former 4-acre disposal area, and implementing institutional controls. The ROD for OU-5 stipulated No Action.

The operable unit that is the subject of this ROD (i.e., OU-1) addresses media within the WGL. In summary, the remedy provides for the removal of visible landfill material from the adjacent wetland, minimizing erosion and deposition of surface soil and landfill material into the adjacent wetland, the protection of human and ecological receptors from exposure to landfill material, the construction of a soil cap over the disposed materials to meet substantive state regulations for landfill closure, long-term monitoring (LTM) as required under state landfill capping regulations, and institutional controls regarding the former disposal area and the groundwater conditions at the site. The selected remedy for OU-1 addresses all potential current and future human health risks primarily posed by PCBs, arsenic, benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, dioxins, dieldrin, and lead present in surface soil; and arsenic, chromium, dibenz(a,h)anthracene, benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, hexachlorobenzene, and 1,4-dioxane present in groundwater; addresses all potential ecological risks primarily posed by aluminum, cadmium, chromium, copper, lead, mercury, nickel, vanadium, zinc, total PAHs, dioxin, and total PCBs present in surface soil; and meets all pertinent state and federal regulations, including state landfill closure requirements and TSCA landfill cover requirements. These actions address potential threats at the site and present the final response actions for the WGL. The ROD for the WGL is one component of the Superfund program at NAS South

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Weymouth, and, as such, has proceeded on an independent track to enable the Navy to expedite site closure and property transfer. The proposed remedy for the WGL is not expected to have an impact on the strategy or progress for the rest of the OUs at NAS South Weymouth.

In summary, the potential threats that this ROD addresses are summarized in Table 2-2.

V. SITE CHARACTERISTICS

A conceptual site model (CSM) for the WGL was presented in Section 8.0 of the FS report (Tetra Tech NUS/ENSR, 2003). The CSM specific for the WGL is shown in Figure 2-2, and presents a diagram of site conditions that illustrates contaminant sources, release mechanisms, exposure pathways, migration routes, and potential human and ecological receptors. It documents current and potential future site conditions and shows what is known about human and environmental exposure through contaminant release and migration to potential receptors. The risk assessment and response actions are based on this CSM.

The WGL is an approximately 5.23 acre wooded area located in the western section of NAS South Weymouth that was formerly used for disposal of solid wastes generated by Navy activities on the base. The site is bounded to the north by an access road and abandoned railroad tracks, to the south and west by a wooded area, and to the east by a perennial stream (French Stream).

Topographically, the WGL is relatively flat with a gentle slope to the west and to the south towards adjacent wetlands (Figure 2-3). The ground surface is covered with dense brush and vegetation. Wetlands form the southern and southwest borders of the landfill and the east is bordered by French's Stream, an adjacent drainage channel. Wetlands form the northeast and southwest borders of the landfill, along French Stream and an adjoining drainage channel. The estimated area of the WGL, determined by test pit observations, ground surface observations, and surveyed locations of nearby site features and landmarks, is approximately 5.23 acres (228,000 square feet). Based on historical records and 1991 test pit data, the approximate depth of fill in the WGL is 10 feet below ground surface (bgs). Based on test pit and geologic log measurements and observations, the approximate volume of fill within the WGL is 85,000 cubic yards. In addition, approximately 10,000 cubic yards of material is projected to be present in the adjacent wetlands.

Historically, the WGL was active for approximately 30 years, from the 1940s through 1972. The landfill was never capped; however, since 1972 it has become heavily overgrown with vegetation, brush and trees. The landfill was used primarily for domestic wastes, and occasionally other wastes generated onsite.

The knowledge of what fill materials are present within the WGL is primarily based upon the 1996 Phase I RI test pit observations. Waste material observed at the WGL included general debris, such as glass bottles, metal and plastic containers, metal scraps, and large pieces of concrete and related construction and demolition debris. An electromagnetic and magnetic geophysical survey was performed in 1991 to further assess the presence of tanks, transformers, or other large metallic objects. Based on the results, four test pits were excavated to identify potential subsurface metal objects. In addition, a fifth test pit was excavated to further delineate the extent of the landfill. Depth of test pitting ranged from the ground surface to approximately 9 feet bgs. Waste material observed within the test pits consisted of metal scraps, asphalt, bricks, concrete, plastic sheeting, wires, bottles, cans, metal wheel rims, rubber pieces, tubing, hoses, glass, and other general debris. In addition, a 5-gallon plastic bucket with black residue was observed in one test pit and a 55-gallon steel drum containing a white granular substance was observed in another test pit. After completion of any necessary sampling and recording of visual and olfactory observations, the excavated material from the test pit was put back into the excavation and the site was restored to grade.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Geologic deposits vary with location within the site, with a thin veneer of topsoil at the surface in some areas, and with fill or peat at or near the surface in other areas. Sand and gravel, probably of glaciofluvial origin, underlies the entire site and sometimes contains bodies of fine-grained sand and silt that may have a lacustrine (glacial melt water ponds) origin. Till was clearly identified in only a few borings. In some boring samples, till can be difficult to distinguish from weathered bedrock or more heterogeneous portions of the glaciofluvial deposits. Because of the limited extent and occurrence of till in the WGL area, upper and lower tills could not be distinguished during boring and coring and are not distinguished on the cross-sections. In several borings, the glaciofluvial and lacustrine sand, gravel, and silt deposits appear to rest directly on weathered bedrock.

Groundwater flow throughout the WGL area is influenced by the geologic origin and permeability of the sediments, the fracture orientation and morphology of the underlying bedrock, and the hydrologic connection between groundwater and French Stream. Despite local variations in overburden deposit type and hydraulic conductivity, relatively uniform eastward flow, toward French Stream, appears to be present in the overburden. There is also evidence for downward flow within overburden and from overburden into fractured bedrock. Based on evidence from elsewhere on the Base, horizontal flow in fractured bedrock may be highly directional, especially below the upper few feet of bedrock.

The WGL is located within or near a Massachusetts Geographic Information System (GIS)-mapped potentially productive aquifer (PPA) underlying French Stream along the western boundary of the NAS South Weymouth property (Tetra Tech NUS, 2000). Other mapping (Williams and Tasker, 1974) indicates that the WGL site lies within a stratified drift aquifer deposit.

French Stream was re-channeled during the Navy's development of the property. Based on topographic data from a 15-minute topographic quadrangle dated 1947, the stream was moved during runway construction from its pre-existing system of wetlands and multiple channel branches to its current configuration of western and eastern straight channels. The figures in this report show its current location, subsequent to the re-channeling. The presently mapped French Stream (western channel), immediately east of WGL, flows where major wetlands were formerly present, prior to runway development. Based on the 1947 topographic map, the eastern branch of French Stream appears to have been the primary branch before the re-channeling.

During the historic environmental studies performed at the WGL, media sampled included surface soil, subsurface soil, groundwater, surface water, and sediment (hydric soil in the adjacent wetlands, as well as sediment in French Stream). In addition, terrestrial (upland) and aquatic (palustrine wetlands and French Stream) tissue samples were collected from a variety of animals and organisms.

Chemical parameters analyzed included all of the organic compounds on EPA's target compound list (TCL), as well as all of the inorganic compounds on EPA's target analyte list (TAL). In addition to these parameters, samples collected during the 1996 Phase I RI program were analyzed for potential hazardous waste properties, and samples collected during the 1999 Phase II RI program were analyzed for additional (non-TCL/TAL) parameters that were not previously assessed. The additional parameters analyzed during the 1999 Phase II RI program were ethylene dibromide (EDB), methyl tertiary-butyl ether (MTBE), 1,4-dioxane, ammonium perchlorate, and dioxins. Target matrices selected for analysis of the additional parameters were based on theoretical usage and physical properties of each of the chemicals, such as partitioning and solubility in environmental media. The rationale for selecting targeted matrices was agreed upon by the Navy and regulatory agencies, and is presented in detail in the Phase II RI Work Plan (Tetra Tech NUS, 1999).

In general, the heterogeneous mixture of soil, fill, and debris within the landfill exhibited concentrations of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dioxins, and metals (aluminum, cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc) in excess of background conditions. The highest concentrations of these chemicals were detected in samples collected from the surface of the landfill; whereas, significantly lower concentrations were detected in the subsurface

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

(subsurface soil and groundwater). Samples of surface water and sediment collected from French Stream exhibited chemical concentrations that were generally consistent with background conditions, with the exception of approximately eight to ten chemicals. Chemicals that exceeded background values and/or ecological benchmark screening values were primarily metals (such as antimony, iron, manganese, and mercury). Constituents in hydric soil collected from the adjacent wetlands indicated the presence of PAHs and some metals in excess of background conditions, which parallel the observations throughout the surface of the landfill (Tetra Tech NUS, 2002).

The results of the human health and ecological risk assessments are presented in Section VII. Refer to Tables 2-3 and 2-8 in Section VII, Summary of Potential Site Risks, for the characteristics and concentrations of human health and ecological chemicals of concern. In general, estimated health risks for the future resident were higher than EPA's acceptable risk range for carcinogens (1×10^{-6} to 1×10^{-4}), non-carcinogens ($HI > 1$), and lead (blood lead level greater than 10 $\mu\text{g}/\text{dl}$ in greater than 5% of the population). Cancer risks for all other human receptors were either within or below the acceptable risk range. Non-cancer risks for all human receptors were higher than the EPA's acceptable levels. The ecological assessment completed for the WGL suggested that certain ecological receptors may potentially be at risk from exposure to chemicals in surface soil at the WGL, and that no ecological receptors (aquatic invertebrates, amphibians, and fish) are at unacceptable risk from exposure to surface water or sediment from French Stream, adjacent to the Site. Unacceptable risk was found for terrestrial invertebrates, birds, and mammals from exposure to cadmium, lead, total PAHs, dioxin, and total PCBs in surface soil only.

Principal threat wastes are defined as those source materials considered to be highly toxic or highly mobile, and which generally cannot be contained in a reliable manner or would present a significant risk to human health or the environment should exposure occur. The manner in which principal threats are addressed generally will determine whether or not the statutory preference for treatment as a principal element is satisfied. Wastes generally considered to be principal threats are liquid, mobile, and/or highly toxic source material. By definition, and based upon site characteristics and the site-specific risk assessment performed, there are no principal threat wastes at the WGL.

Low-level threat wastes are defined as those source materials that generally can be reliably contained and that would present only a low risk in the event of exposure. Wastes that are generally considered to be low-level threat wastes include non-mobile contaminated source material of moderate toxicity, surface soil containing chemicals of concern that are relatively immobile in air or groundwater, low leachability contaminants or low toxicity source material. By definition, and based upon the site characteristics and the site-specific risk assessment performed, the presence of PAHs, PCBs, dioxins, dieldrin, and several metals in surface soils (terrestrial and hydric), and the presence of arsenic, dibenz(a,h)anthracene, and chromium in groundwater may be considered as low-level threat wastes at the WGL.

VI. CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

NAS South Weymouth was operationally closed on September 30, 1996, and administratively closed on September 30, 1997. As such, historical operations conducted at the base are no longer occurring. The base is located within a residential/light commercial area.

The WGL was active for approximately 30 years, from the 1940s through 1972. The landfill was never formally closed and is now heavily overgrown with vegetation, brush and trees. The landfill was used primarily for domestic wastes, and occasionally other wastes generated on-site. The site is bounded to the north by an access road and abandoned railroad tracks, to the south and west by a wooded area, and to the east by a perennial stream (French Stream). Topographically, the WGL is relatively flat with a gentle slope to the west and to the south towards adjacent wetlands. The WGL is located within an aquifer protection district and a potentially productively aquifer area. The WGL is located in a separate drainage basin from Whitman's Pond (a drinking water supply) and is not hydraulically connected to Whitman's Pond.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

The 2005 reuse plan shows that the WGL area has been zoned as a mixed use area, allowing for a variety of potential reuses including residential, commercial, retail, or public recreation/open space. More recent potential reuse considerations suggest a roadway may intersect the site. As required under CERCLA, all potential reuse scenarios were assessed during the RI risk assessment and FS evaluations (refer to Section VII).

VII. SUMMARY OF POTENTIAL SITE RISKS

Baseline human health and ecological (environmental) risk assessments were conducted for the West Gate Landfill. Initial assessments were performed in 1995/1996 as part of the Phase I RI program, and expanded assessments were performed in 1999/2000 as part of the Phase II RI program (Tetra Tech NUS/ENSR, 2002). The baseline risk assessments evaluated many exposure pathways, including both current and reasonably expected future exposure scenarios for the WGL. Specifically, the baseline risk assessments were performed to estimate the probability and magnitude of potential adverse human health and environmental effects from exposure to compounds associated with the site if no remedial actions were taken. The assessments provide the basis for taking action, and identify the compounds and exposure pathways that need to be addressed by the remedial action, if necessary. A summary of the human health risk assessment is discussed below, followed by a summary of the ecological risk assessment.

A. Human Health Risk Assessment

The human health risk assessment followed EPA's required four-step process: 1) hazard identification, which identified those hazardous substances that, given the specifics of the site, were of significant concern; 2) exposure assessment, which identified actual or potential exposure pathways, characterized the potentially exposed populations, and determined the extent of possible exposure; 3) toxicity assessment, which considered the types and magnitude of adverse health effects associated with exposure to hazardous substances; and 4) risk characterization and uncertainty analysis, which integrated the three earlier steps to summarize the potential risks posed by hazardous substances at the site, including potential carcinogenic and non-carcinogenic risks and a discussion of the uncertainty in the risk estimates.

Twenty-six of the chemicals detected at the West Gate Landfill were selected for evaluation in the human health risk assessment as chemicals of potential concern. The chemicals of potential concern were selected to represent potential site hazards based on toxicity, concentration, frequency of detection, and mobility and persistence in the environment, and can be found in Table 6-3 of the Phase II RI report (Tetra Tech NUS/ENSR, 2002). From this, a subset of the chemicals were identified in the Feasibility Study as presenting a significant current or future risk and are referred to as the chemicals of concern in this ROD and are summarized in Table 2-3. This Table contains the exposure point concentrations used to evaluate the reasonable maximum exposure scenario (RME) in the baseline risk assessment for the chemicals of concern. Estimates of average or central tendency exposure concentrations for the chemicals of concern and all chemicals of potential concern are presented in Tables 6-18, 6-19, 6-20, and 6-21 of the Phase II RI report (Tetra Tech NUS/ENSR, 2002).

Table 2-3 presents the chemicals of concern (COCs) and exposure point concentration for each of the COCs detected in surface soil and groundwater (*i.e.*, the concentration that will be used to estimate the exposure and risk from each COC in the surface soil or groundwater). The table includes the maximum detected concentrations for each COC, as well as the frequency of detection (*i.e.*, the number of times the chemical was detected in the samples collected at the site), the exposure point concentration (EPC), and how the EPC was derived. The table indicates that arsenic and lead are the most frequently detected COCs in surface soil at the site and chromium is the most frequently detected COC in groundwater at the site. The 95% Upper Concentration Limit (UCL) on the arithmetic mean was used as the surface soil exposure point concentration for arsenic and dibenz(a,h)anthracene. However, due to the limited amount of sample data available for other surface soil COCs, the maximum concentration was used as the default

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

exposure point concentration. Maximum concentrations were used as the exposure point concentrations for all COCs in groundwater.

Potential human health effects associated with exposure to the chemicals of potential concern were estimated quantitatively or qualitatively through the development of several hypothetical exposure pathways. These pathways were developed to reflect the potential for exposure to the chemicals of potential concern based on present uses, potential future uses, and location of the site. According to on-site Navy personnel, there are no regular activities occurring at the West Gate Landfill; therefore, there is limited potential for current worker exposure. Human activity is limited to possible brush clearing or grass cutting during the summer months. It is also possible that sewer or utility line repair work could occur at the site. Although the Base is operationally closed, access to the Base is generally controlled by means of fencing, vehicle gates, and administrative staff. Based on the proximity to residences and public streets, the West Gate Landfill site has been identified as having the potential for exposure by trespassers.

For future use scenarios, it was assumed that land use would change. The most conservative assumption of future residential land use was assumed, as well as the possibility of a child using the fields for recreational activities. The risk evaluation for both current site use (on-site worker, trespassing child, and construction worker), and hypothetical future site use (on-site resident and recreational child) assumed that potential human receptors would be exposed to chemicals of potential concern at the West Gate Landfill via incidental ingestion and dermal contact with surface soil, sediment, and surface water. It is assumed that the hypothetical future resident would be exposed to groundwater via ingestion, and that construction workers would be exposed to subsurface soil via incidental ingestion and dermal contact. It is also assumed construction workers would be exposed to both surface and subsurface soil via inhalation of dust.

Average daily doses of chemicals of potential concern were estimated using conservative assumptions relative to the rates of potential contact with site media, the frequency and duration of contact, and other parameters. Exposure assumptions are presented in Tables 6-12 through 6-17 of the Phase II RI report (Tetra Tech NUS/ENSR, 2002). Current exposures to surface soil (ingestion and dermal only) and future exposures to surface soil (ingestion and dermal) and groundwater (ingestion) were found to present a significant risk. Exposures to subsurface soil, dust, sediment, and surface water did not present significant risk and are not discussed further in the ROD. The following provides a brief summary of the exposure pathways presenting significant risk. A more thorough description of all exposure pathways evaluated in the risk assessment including estimates for an average exposure scenario, can be found in Section 6.0 of the Phase II RI report (Tetra Tech NUS/ENSR, 2002).

Dermal contact and incidental ingestion of surface soils was evaluated for current on-site workers who may be exposed 78 days per year for 25 years, current trespassing children ages 6-16 years who may be exposed 39 days per year for 10 years, current construction workers who may be exposed 130 days per year for 1 year, future residents who may be exposed 150 days per year for 30 years, and future recreational children between the ages of 1 and 6 years who may be exposed 141 days per year for 6 years. For contaminated groundwater, ingestion of 2 liters/day, 350 days/year for 24 years was presumed for an adult and 1 liter/day, 350 days/year for 6 years was presumed for a child.

Excess lifetime cancer risks were determined for each receptor by multiplying a daily dose with the chemical-specific cancer potency factor. Cancer potency factors have been developed by EPA from epidemiological or animal studies to reflect a conservative "upper bound" of the risk posed by potentially carcinogenic compounds. That is, the true risk is unlikely to be greater than the risk predicted. The resulting risk estimates are expressed in scientific notation as a probability (e.g., 1×10^{-6} or 1/1,000,000, which indicates that an average individual is not likely to have greater than a one in a million chance of developing cancer over 70 years as a result of site-related exposure to the compound at the stated concentration). All risks estimated represent an "excess lifetime cancer risk," or the additional cancer risk above the background level from other causes. EPA's generally acceptable risk range for site-related

Record of Decision

Naval Air Station South Weymouth

Part 2: The Decision Summary

exposure is 1×10^{-4} to 1×10^{-6} . EPA protocol at the time of risk characterization considered carcinogenic risks to be additive when assessing exposure to a variety of substances.

A summary of the potential carcinogenic toxicity data relevant to the chemicals of concern for the West Gate Landfill is presented in Table 2-4. This table provides the carcinogenic risk information that is relevant to the chemicals of concern in surface soil and groundwater at the West Gate Landfill. At the time of risk characterization, there were no slope factors available for the dermal route of exposure. Therefore, in accordance with EPA guidance, the oral slope factors for these chemicals were used to evaluate dermal exposure. Different absorption adjustment factors were used for the oral and dermal exposure routes.

In assessing the potential for adverse effects other than cancer, a hazard quotient (HQ) is calculated by dividing the daily dose by the reference dose (RfD) or other suitable benchmark. RfDs have been developed by EPA and represent a level to which an individual may be exposed that is not expected to result in any deleterious effect. RfDs are derived from epidemiological or animal studies and incorporate uncertainty factors to help ensure that adverse health effects will not occur. An HQ less than or equal to 1 indicates that a receptor's dose of a single contaminant is less than the RfD, and that adverse non-carcinogenic effects from that chemical are unlikely. The HQs for each chemical of potential concern, for which the receptor is potentially exposed to via a specific pathway, are summed to yield the Hazard Index (HI) for that pathway. A total HI is then calculated for each receptor by summing the pathway-specific HIs. An HI less than or equal to 1 indicates that adverse non-carcinogenic effects are unlikely. A summary of the potential non-carcinogenic toxicity data relevant to the chemicals of concern at the West Gate Landfill is presented in Tables 2-5 through 2-6. These tables provide the non-carcinogenic risk information that is relevant to chemicals of concern in soil and groundwater. Similar to the carcinogenic risk data, the dermal dose-response values applied during risk characterization were the same as the oral dose-response values for these chemicals.

Because of the uncertainties in the dose-response relationship between exposures to lead and biological effects, there is no EPA-derived RfD for lead. Therefore, the Integrated Exposure Uptake Biokinetic, or IEUBK, model was used to evaluate future child exposures to lead in soil. For both future child residents and future recreational children, the percent population predicted to exceed blood levels of 10 ug/dL was 36.05%. This percentage is greater than the exceedance probability of 5% that has been used by EPA in evaluating the potential need for cleanup actions.

The results of the risk assessment showed that potential carcinogenic risks under the current use scenarios were within or below the acceptable risk benchmarks at the West Gate Landfill. However, potential risks under the current scenario were above acceptable non-carcinogenic risk benchmarks for all receptors. Potential risks under the future scenario were above acceptable carcinogenic and non-carcinogenic risk benchmarks for the residential receptor and above acceptable non-carcinogenic risk benchmarks for recreational receptors. These theoretical non-cancer risk exceedances were based primarily on the presence of PCBs in surface soil. Arsenic and chromium in groundwater also contributed to a lesser degree to total site non-cancer risk for residents. Much of the excess cancer risk for the resident is associated with potential exposure to dibenz(a,h)anthracene and arsenic in groundwater and PCBs in surface soil. Benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, hexachlorobenzene, and 1,4-dioxane in groundwater and arsenic, dioxins, benzo(a)pyrene, benzo(a)anthracene, dibenz(a,h)anthracene, and dieldrin in surface soil also contributed to cancer risk. As noted above, future residential and recreational exposures to lead in surface soil exceeded the EPA level of concern. Table 2-7 depicts the human health risk summary for the chemicals of potential concern in soil, sediment, surface water, and groundwater evaluated to reflect current and potential future site use corresponding to the RME scenario. Those risks exceeding EPA acceptable levels are highlighted. Refer to Section 6.0 of the Phase II RI report (Tetra Tech NUS/ENSR, 2002) for a more comprehensive risk summary.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

The risk assessment uses assumptions that have uncertainties associated with them. Some of the assumptions have a firm scientific basis, while others do not. Some level of uncertainty is introduced into the risk characterization process every time an assumption is made. In regulatory risk assessment, the methodology dictates that assumptions err on the side of overestimating potential exposure and toxicity. Such estimates may be useful for regulatory decision-making, but do not provide a realistic estimate of potential health impacts. The effect of using numerous assumptions that each overestimate potential exposure and toxicity is to exaggerate estimates of potential human risk.

B. Ecological Risk Assessment

In addition to the human health risk assessment described above, a Tier II ecological risk assessment was also performed. The ecological risk assessment evaluated potential risks to ecological receptors that may occur in the presence of chemical stressors in environmental media. The ecological risk assessment was completed in three steps: (1) problem formulation; (2) risk analysis; and (3) risk characterization. Each of these steps is described below.

Problem Formulation

The habitats evaluated at the West Gate Landfill during the ecological assessment included the landfill surface, as well as French Stream and nearby wetlands surrounding the landfill. The Navy collected and evaluated information about the site conditions (e.g., type of habitat, and types of plant and animal species at the site), the COPCs, and the potential exposure pathways.

The following chemicals were identified as ecological COPCs:

- 19 of 23 inorganic compounds, and all 45 detected organic compounds were retained as COPCs in surface soil;
- 6 of 22 inorganic constituents, 2 of 6 pesticides, no SVOCs, and 2 of 6 VOCs were retained as COPCs in French Stream sediment;
- 10 of 21 inorganic constituents, 6 of 10 pesticides, 7 SVOCs (including total PAH), and 1 of 3 VOCs were retained as COPCs in hydric soil;
- 2 of 14 inorganic compounds from unfiltered samples and 4 of 15 inorganic compounds from filtered samples were retained as COPCs in French Stream surface water;
- 5 of 13 inorganic compounds from unfiltered samples and 3 of 15 inorganic compounds from filtered samples were retained as COPCs in surface water from the wetland;
- 17 inorganic compounds and 6 organic constituents were retained as COPCs in earthworm tissue;
- 12 inorganic compounds and 3 organic constituents were retained as COPCs in small mammal tissue;
- 2 organic constituents were retained as COPCs in fish tissue; and
- 1 organic constituent was retained as COPCs in amphibian tissue.

The COPCs used in the ecological risk assessment can be found in Tables 7-4 through 7-12 of the Phase II RI report (Tetra Tech NUS/ENSR, 2002). From this, for ecological media presenting a significant risk (surface soil only), a subset of the chemicals were identified in the Feasibility Study as presenting a significant risk to ecological receptors and are referred to as the chemicals of concern, or COCs, in this ROD. These chemicals of concern used in the ecological risk assessment of surface soil are presented in Table 2-8. This Table contains the exposure point concentrations used to evaluate the maximum exposure in the ecological risk assessment for the chemicals of concern in surface soil. Estimates of average exposure concentrations for the chemicals of concern and all chemicals of potential concern in all media evaluated are presented in Tables 7-16 and 7-17 of the Phase II RI report (Tetra Tech NUS/ENSR, 2002).

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

The ecological receptor groups evaluated included terrestrial vertebrates (small mammals or birds), terrestrial invertebrates (earthworms), wetland vertebrates (e.g., amphibians, small mammals, birds), aquatic vertebrates (e.g., fish), aquatic/benthic and wetland invertebrates (e.g., benthic macroinvertebrates), terrestrial and wetland plants, and French Stream invertebrates, fish, and amphibians.

Risk Analysis

Similar to the human health risk assessment, the Navy evaluated the possible harmful effects to the ecological receptors from the COPCs. The chemical concentrations to which the ecological receptors might be exposed were determined by sampling soil, water, sediment, plant, and animal tissue. These concentrations were used directly and in modeling doses to ecological receptors to determine risk. Effects were determined by the following methods: screening against toxicity thresholds; laboratory toxicity tests with plants, terrestrial and aquatic invertebrates, and amphibians; a tissue burden evaluation for terrestrial invertebrates; a sediment invertebrate community evaluation; a small mammal tissue burden analysis; and a comparison of modeled daily uptake with literature ingestion thresholds for birds and mammals to calculate a hazard quotient (HQ). An HQ greater than 1.0 indicates potential unacceptable risk.

The ecological exposure pathways evaluated included:

- Direct contact with surface soils by terrestrial plant species;
- Direct contact with surface soils by terrestrial invertebrates;
- Incidental ingestion of sediment/hydric soils, surface water, and surface soils by vertebrate wildlife;
- Direct contact with French Stream surface water and sediment by aquatic invertebrates;
- Direct contact with wetland hydric soils and surface water by terrestrial/wetland invertebrates;
- Direct contact with hydric soil by wetland plant species;
- Direct contact with surface water and sediment by aquatic and wetland vertebrates (i.e., amphibians, fish); and
- Vertebrate wildlife ingestion of prey items that have bioaccumulated chemicals of potential concern from surface water, surface soils, sediment, and hydric soils.

The measurement and assessment endpoints used in the ecological risk assessment are presented in Table 2-9.

Risk Characterization

The results from the risk analysis were used to determine the probability of adverse effects to the ecological receptors at the site. The result of an ecological risk assessment is based on an interpretation of the overall weight of evidence collected from the site.

The ecological assessment completed for the West Gate Landfill suggested that certain ecological receptors may potentially be at risk from exposure to COPCs in surface soil at the West Gate Landfill, and that no ecological receptors (aquatic invertebrates, amphibians, and fish) are at unacceptable risk from exposure to surface water or sediment from French Stream, adjacent to the Site. Unacceptable risk was found for terrestrial invertebrates, birds, and mammals from exposure to aluminum, cadmium, chromium, copper, lead, mercury, nickel, vanadium, zinc, total PAHs, dioxin, and total PCBs in surface soil only. Wildlife organisms such as the Carolina wren and star-nosed mole that are exposed to surface soils, as well as to surface water and sediment, had elevated HQs from surface soil exposure pathways. The majority of HQs for the wetland wildlife species that were evaluated in the ERA were well below 1, or were consistent with background HQs, suggesting limited potential for unacceptable ecological risks associated with surface water or hydric soil exposure in the wetland adjacent to the WGL. EPA's review of the RI/FS identified significant uncertainty with respect to the characterization in the wetland areas along the

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

southern perimeter of the site. Refer to Section 7.0 of the Phase II RI report (Tetra Tech NUS/ENSR, 2002) for a comprehensive ecological risk assessment presentation.

Similar to the human health risk assessment, the ecological risk assessment uses assumptions that have uncertainties associated with them, which influence the results and conclusions of the risk assessment. Some of the assumptions may underestimate potential risk, some have an unknown effect on potential risk, while some assumptions tend to overestimate potential risk. Uncertainties in the ecological risk assessment process for the West Gate Landfill are summarized in Table 7-58 of the Phase II RI (Tetra Tech NUS/ENSR, 2002). While these uncertainties generally tend to overestimate the potential ecological risks at the West Gate Landfill, the use of limited site-specific toxicity testing data results in fewer uncertainties than are often contained in ecological risk assessments.

C. Basis for Response Action

In summary, the human health risk assessment indicated potential risks that exceed regulatory risk thresholds under the current scenario for on-site worker, trespassing child, and construction worker and under the future scenario for residents and recreational children from exposures to surface soil. These theoretical risk exceedance were based on the presence of PCBs, arsenic, dioxins, PAHs, dieldrin, and lead in surface soil. The human health risk assessment also indicated potential risks that would exceed regulatory risk thresholds if, in the future, groundwater beneath the site were to be used as drinking water for on-site residents. This potential risk was based on the presence of arsenic, chromium, dibenz(a,h)anthracene, other PAHs, hexachlorobenzene, and 1,4-dioxane in groundwater. Further, the ecological risk assessment concluded that certain ecological receptors may potentially be at risk from exposure to surface soil, and that no ecological receptors (aquatic invertebrates, amphibians, and fish) are at unacceptable risk from exposure to surface water or sediment from French Stream, adjacent to the Site. Unacceptable risk was found for terrestrial invertebrates, birds, and mammals from exposure to aluminum, cadmium, chromium, copper, lead, mercury, nickel, vanadium, zinc, total PAHs, dioxin, and total PCBs in surface soil only. No other human health or ecological risks were identified for the current and future use scenarios evaluated.

Because the baseline human health risk assessment revealed that current on-site workers and trespassing children and future recreational children potentially exposed to compounds of concern in surface soil via ingestion and dermal contact, current construction workers potentially exposed to compounds of concern in surface soil via ingestion, dermal contact, and inhalation of dust, and future residents potentially exposed to compounds of concern in surface soil via ingestion and dermal contact and in groundwater via ingestion as drinking water may present an unacceptable human health risk exceeding an HI of concern (1.0); because future residents potentially exposed to compounds of concern in surface soil via ingestion and dermal contact and in groundwater via ingestion as drinking water may present an unacceptable human health risk exceeding a cancer risk level of concern (10^{-4}); because the baseline ecological risk assessments revealed that terrestrial invertebrates potentially exposed to compounds of concern in surface soil via direct contact may present an ecological risk based on comparison of COPC concentrations to soil screening benchmarks, laboratory toxicity testing of earthworms, and analysis of earthworm tissue COPC burdens; and because the baseline ecological risk assessments revealed that birds, and mammals potentially exposed to compounds of concern in surface soil via ingestion of soil and prey may present an ecological risk based on elevated hazard quotients; actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

VIII. REMEDIATION OBJECTIVES

Remedial objectives, or Remedial Action Objectives (RAOs), are media-specific goals that are established to protect human health and the environment. RAOs are typically based on chemicals of concern, exposure pathways, and receptors present or available at the site. Additionally, RAOs are

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

developed to ensure compliance with federal and state Applicable or Relevant and Appropriate Requirements (ARARs). Based on the gathered information relating to types of contaminants, environmental media of concern, and potential exposure pathways, RAOs were developed to mitigate, restore and/or prevent existing and future potential threats to human health and the environment, and comply with ARARs. The RAOs for the WGL that were established during the FS, and expanded upon during the development of the Proposed Plan (based on discussions with EPA and MADEP) are:

- Eliminate human and ecological exposure to the surface of the landfill.
- Minimize erosion and deposition of surface soil and landfill material into the adjacent wetlands.
- Remove visible landfill material from the palustrine wetlands adjacent to the WGL, and restore the wetlands impacted by the removal.
- Meet state regulations and TSCA requirements regarding closing a landfill, for those alternatives that include landfill capping.
- Prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards, or posing an unacceptable risk to human health.

The first RAO was established to mitigate the risks posed to human and ecological receptors by reducing the possibility of exposure to the impacted material. The reduction of exposure to potential PCBs within the impacted material would also be achieved if landfill capping were implemented. However, because the Navy has agreed to incorporate TSCA regulations as applicable, action-specific ARARs for the WGL, numerical cleanup goals for PCBs will also be considered in addition to risk-reduction goals.

The second RAO was established to prevent direct contact with the landfill contents (debris, and metal-, PAH-, and dioxin-impacted material), to control erosion and surface water runoff, and to prevent the deposition of sediment into the bordering wetlands by capping the landfill.

The third RAO was established to ensure that remedial alternatives provide a comprehensive site response. Based on an estimated area of 45,000 square feet and an estimated depth of 6 feet, the approximate volume of landfill material within the palustrine wetland is 10,000 cubic yards. In general, the presence of selected inorganics and pesticides in hydric soil within the adjacent wetlands, and selected inorganics in surface water within the adjacent wetlands, posed potential risks in excess of preliminary risk-screening guidance values. However, the toxicity testing program performed during the 1999 Phase II RI indicated that detected concentrations of those chemicals are not toxic to wetland receptors. The Pre-Design Investigation (PDI) will include details on sampling planned in the wetlands adjacent to the landfill. Landfill-related wastes which may be present in the wetland area (as indicated by the results of the PDI sampling as well as visible debris) will be removed and the wetland area disturbed by this removal will be restored following the receipt of acceptable confirmatory sample results from that area(s).

The fourth RAO was established ensure state and TSCA requirements were met with regard to landfill closure. Although landfill capping would improve site conditions, compliance with the presumptive remedy guidance and state solid waste landfill capping requirements may not be necessary under CERCLA. Therefore, EPA Region I requested that the Navy include compliance with the state solid waste landfill closure requirements, TSCA requirements, and the presumptive remedy guidance as an RAO for any remedial alternative that includes landfill capping.

The fifth RAO was established to prevent the potential exposure of a hypothetical future resident from consuming groundwater as a drinking water source. The risk assessment for future on-site residents exposed to groundwater indicated potential risks associated primarily with arsenic and

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

dibenz(a,h)anthracene for carcinogens and with arsenic and chromium VI for the non-carcinogens. The risk assessment did not indicate potential unacceptable risks to humans based on exposure to lead in groundwater. Overall, after further evaluation, the Navy, with input from EPA, has concluded that groundwater cleanup is not necessary at the WGL for the following reasons:

- Arsenic and dibenz(a,h)anthracene were found in only one groundwater sample collected at the site. Also, the arsenic concentration was less than the state and federal standards for public drinking water supplies.
- Chromium was detected at concentrations below state and federal standards for public drinking water supplies.
- If, in the future, the groundwater beneath the site were to be used as a drinking water supply, routine groundwater treatment using standard municipal-level treatment technologies (e.g., precipitation and filtration) could achieve federal and state drinking water and aesthetic (e.g., taste and odor) standards. Such treatment would be intended to address any potential risk posed by these chemicals.

Overall, existing groundwater data for the WGL indicate that active remediation (e.g., a pump and treat system) is not necessary to address site groundwater. EPA and MADEP have agreed with the Navy that evaluation of active groundwater treatment in the FS was not necessary. This RAO developed by EPA is intended to maintain consistency across the region in administering the CERCLA program. EPA intends to assess groundwater quality through LTM at the WGL, without treatment.

IX. DEVELOPMENT AND SCREENING OF ALTERNATIVES

Statutory Requirements/Response Objectives

The Navy's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences, including: a requirement that the response action, when complete, must comply with all federal and more stringent state environmental and facility siting standards, requirements, criteria or limitations, unless a waiver is invoked; a requirement that the response action is cost-effective and utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and a preference for response actions in which treatment significantly reduces the volume, toxicity or mobility of the hazardous substances is a principal element over remedies not involving such treatment. Response alternatives were developed to be consistent with these Congressional mandates.

Technology and Alternative Development and Screening

CERCLA and the National Contingency Plan (NCP) set forth the process by which remedial actions are evaluated and selected. In accordance with these requirements, a range of alternatives were developed for the WGL. However, the level of response (e.g., degree of cleanup, regulatory basis, etc.) varies in order to provide a broad range of alternatives to consider. In addition, a No Action alternative is included, per the NCP and regulatory guidance, as a baseline for comparison.

As presented in the FS for the WGL (Tetra Tech NUS/ENSR, 2003), remedial technologies and process options were identified, assessed, and screened based on implementability, effectiveness, and cost. These technologies were then combined into remedial alternatives. Section 4.0 of the FS presented the remedial alternatives developed by combining the technologies identified in the previous screening process in the categories identified in Section 300.430(e)(3) of the NCP. The purpose of the initial screening was to narrow the number of potential remedial actions for further detailed analysis while preserving a range of options. Each alternative was then evaluated in detail in Section 5.0 of the FS. In

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

summary, six remedial alternatives were selected for detailed analysis. Further detail is provided in Section X of this ROD.

X. DESCRIPTION OF ALTERNATIVES

This section provides a narrative summary of each alternative evaluated. The alternatives evaluated and presented in the FS for the WGL include:

- WGL-1: No Action
- WGL-2: Limited Action
- WGL-3: Construct a Soil Cap
- WGL-4: Construct a Flexible Membrane Liner (FML) Cover
- WGL-5: Remove and Dispose of all WGL Materials Off-Site
- WGL-6: Remove WGL Materials and Dispose of a at Newly-Constructed Landfill On-Site

Each of the alternatives and their major components, as evaluated and presented in the FS, are summarized below and in Table 2-10. A more complete, detailed presentation of each alternative is found in Section 5.0 of the FS (Tetra Tech NUS/ENSR, 2003). Since the completion of the FS, modifications have been made to the selected remedy to address the concerns and interests of EPA and MADEP. These modifications have been incorporated into the selected remedy which is presented and described in Section XII, Description of the Selected Remedy.

A. WGL-1: No Action

The “No Action” alternative does not include the implementation of any remedial action for the site. It also does not include any LTM or institutional controls. The only component of this alternative is the implementation of one 5-year review.

In general, when hazardous substances, pollutants, or contaminants are left in-place, 5-year site reviews are required pursuant to CERCLA Section 121c. As such, leaving landfill material in-place could be considered a condition that warrants 5-year site reviews for the WGL. However, under this alternative, it is presumed that the site does not exceed regulatory risk thresholds or ARARs that would necessitate an action. For No Action alternatives, there is a minimum obligation under CERCLA to perform one 5-year review after signing the ROD. This 5-year review would entail assessing that there is no unacceptable erosion of materials into the wetlands, and that general site conditions (upon visual observation) have not changed since the ROD was signed, necessitating more aggressive action.

Since this alternative does not include any remedial action, the RAOs established for minimizing exposure to the landfill surface, and restoring the adjacent wetlands would not be achieved. This alternative would not achieve ARARs and To Be Considered (TBCs), and is retained solely to satisfy EPA guidance which requires its use as a baseline for comparison to other remedial alternatives (EPA, 1988).

B. WGL-2: Limited Action

Alternative WGL-2 is a limited action alternative. Limited action for the WGL is considered to consist of general surface restoration. In addition, this alternative includes the installation of perimeter fencing and signage, institutional controls, and 5-year reviews. This alternative would provide some level of erosion control, as well as some level of surficial chemical exposure reduction through grading and vegetation.

The limited action alternative would combine limited surface restoration, and the implementation of institutional and physical (engineering) controls.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Clearing, Grubbing, and Grading

Limited surface restoration would be performed. The surface restoration would include clearing, grubbing, grading, and revegetating the upland portion of WGL, where the bulk of municipal solid waste is contained within the landfill. It would also include surface restoration in a portion of the adjacent wetlands.

Wetland Restoration

Delineated wetland areas adjacent to where earthwork (clearing, grubbing, and grading) is performed would require restoration. Mitigation efforts would include, at a minimum, backfilling to a suitable grade with organic soils, and replanting with native species as specified by a wetland scientist. Monitoring of mitigation efforts would continue until such a time that it is certain that transplantation or planting efforts are successful.

Fencing and Signage

A fence with posted signs would be constructed to restrict access to the WGL, and protect the public from contacting or disrupting the surface of the WGL.

Institutional Controls

The Navy will implement institutional controls to achieve the land use control (LUC) performance objective. Refer to Section XII for details.

Five-Year Reviews

The 5-year reviews would include a record review and a site inspection to confirm that the institutional/engineering controls are in place and effective, as well as monitoring to ensure that the wetland restoration efforts are successful.

C. WGL-3: Soil Cap

Alternative WGL-3 focuses on the construction of a permeable soil landfill cover. In addition, this alternative includes the installation of perimeter fencing and signage, institutional controls, LTM, and 5-year reviews.

This alternative would achieve the RAOs established for minimizing exposure to the landfill surface, restoring the adjacent wetlands, and complying with state and TSCA landfill closure requirements (necessary only in the event of capping).

Based on federal and state landfill closure requirements, the construction of a landfill cap using soil is an acceptable, and commonly applied, technique to complete landfill closure. In addition to selecting a soil cap to achieve landfill closure, leachate and gas management techniques were also considered. However, leachate and gas management as part of landfill closure is not warranted or practical for the WGL. Leachate collection and treatment is not considered practical, primarily because the material within the WGL is located in the saturated zone. That is, the depth of material is, on average, approximately 0 to 10 feet bgs, while groundwater, on average, ranges from 1 to 10 feet bgs. Data collected to date reveals that very few contaminants are present in groundwater within the WGL. As such, even though the waste material within the WGL is in contact with groundwater, it does not appear to be causing groundwater contamination in excess of primary Maximum Contaminant Levels (MCLs).

Similarly, landfill gas collection and treatment is also not considered to be warranted because the nature of the fill material (principally inorganic) is not expected to produce a substantial amount of gas such as methane. However, soil gas management will be further evaluated as part of the PDI.

Record of Decision

Naval Air Station South Weymouth

Part 2: The Decision Summary

Based on known site conditions at the WGL, and since TSCA is being considered to apply to the WGL for this FS (refer to FS Section 3.4.3), a soil cap with a permeability of 1×10^{-7} cm/sec or less would be an appropriate capping alternative according to EPA CERCLA municipal landfill site guidance (EPA, 1991). In addition, this alternative would comply with both TSCA and state solid waste landfill closure requirements. In summary, this containment alternative includes the use of a soil cap as an appropriate and cost-effective option. Additionally, this alternative includes site preparation, clearing and grubbing, surface water drainage, and post-closure care, all of which are necessary to support the permanence and performance of the soil cap. The following sections describe the components of this alternative.

Clearing, Grubbing, and Grading

Currently, the surface of the WGL is unpaved, and covered with a mixture of gravel and vegetation. Wetlands bound the majority of the western and southern portions of the WGL. The site is relatively flat with little topographic slope. The area immediately east of the site (between the WGL boundary and French Stream) has a more defined slope, forming the western bank of French Stream.

To prepare the surface of the landfill for capping, the surface needs to be cleared of vegetation, and the grades need to be modified to provide a consistent slope to promote surface water drainage and minimize erosion. Vegetative and woody material cleared and grubbed during site preparation would be chipped and used as onsite fill or would be transported offsite, based on its physical and chemical composition.

To prevent the erosion of cap construction materials into the adjacent wetlands, all clearing, grubbing, and grading activities would take place after a perimeter ring of hay bales and a silt fence are installed.

Construction of Soil Cap

Since the Navy has agreed to consider TSCA as an action-specific ARAR, in addition to complying with state solid waste requirements, the construction of the soil cap will be designed to comply with the requirements cited under 40 CFR 761.61(a)(7). This citation references 40 CFR 264.310 (a) (closure and post closure care of landfills that contain hazardous wastes) and the parameters (permeability, sieve, liquid limit and plasticity index) listed in 40 CFR 761.75 (b)(1)(ii) through (b)(1)(v). TSCA requirements specify that a soil cap should have a minimum thickness of 10 inches with a maximum permeability of 1×10^{-7} cm/sec. State requirements specify that a soil cap should consist of an 18-inch thick layer of low-permeability soils, with a maximum permeability of 1×10^{-7} centimeters per second (cm/sec). Therefore, to comply with both TSCA technical requirements and state design standards, it is appropriate to propose a low-permeability soil cap with the following specifications:

- Permeability equal to or less than 1×10^{-7} cm/sec [TSCA; 40 CFR Part 761.75 (b)(1)(ii)]
- Percent soil passing No. 200 Sieve > 30% [TSCA; 40 CFR Part 761.75 (b)(1)(iii)]
- Liquid limit > 30% [TSCA; 40 CFR Part 761.75 (b)(1)(iv)]
- Plasticity index > 15 [TSCA; 40 CFR Part 761.75 (b)(1)(v)]
- Minimum compacted cover thickness of 18 inches [310 Code of Massachusetts Regulations (CMR) 19.112 (6)(b)(1)(a)]
- Materials that have a maximum in-place saturated hydraulic conductivity of 1×10^{-7} cm/sec throughout the entire thickness of the layer [310 CMR 19.112 (6)(b)(1)(b)]
- Compacted to minimize void spaces [310 CMR 19.112 (6)(b)(1)(c)]
- Capable of supporting the weight imposed by the post-closure use without settling or causing or contributing to the failure of the low permeability layer [310 CMR 19.112 (6)(b)(1)(d)]
- Free of materials that, because of their physical, chemical or biological characteristics, may cause or contribute to an increase in the permeability of the low permeability layer or otherwise cause a failure of the low permeability layer [310 CMR 19.112 (6)(b)(1)(e)]

To achieve the permeability requirement of 1×10^{-7} cm/sec, a clayey soil will be necessary. Even with this lower permeability, the cover material would still be considered relatively permeable compared to an FML,

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

and it would not be necessary to provide a drainage layer on top of it to control surface water. To maintain overall site aesthetics and to prevent erosion of the soil cap, an 8 to 9-inch layer of topsoil will be constructed and seeded to produce a thick and dense vegetative mat. Soil required must meet relevant specifications including fertilization and liming requirements. During germination, seeded areas would be protected with a mulch or straw mat. If hydroseeding is used (as used in the associated cost estimate), a tackifier may be a substitute erosion control protection measure.

Because of the gentle top and side-slopes that a soil cap over the WGL would exhibit, and because the soil cap would be relatively permeable, storm water would be managed by sheet-flow off of the side slopes, with channelized flow and discharge from several exit points at the toe of the landfill. Preliminary calculations show that the post-construction increase in flow can be discharged to the wetland area (west and south of the landfill), as well as to French Stream (east of the landfill) at a maximum rate of 4 feet per second (ft/sec). This value is the recommended maximum discharge velocity for storm water flow discharged into wetlands and water bodies. Based on the topography and sensitive habitat in the immediate vicinity of the WGL, a uniform overland flow distribution would be preferred, rather than a small number of individual point discharges.

Wetland Restoration

Delineated wetland areas adjacent to where earthwork (clearing, grubbing, and grading) is performed and from which material would be removed would require restoration. Refer to Alternative WGL-2 for details.

Fencing and Signage

This alternative would require fencing and signage (physical controls) to limit site access. Refer to Alternative WGL-2 for details.

Institutional Controls

This alternative includes a deed restriction (proprietary control in the form of a restrictive covenant) to provide notice of existing site conditions. The fencing and signage included as part of this alternative are not mandatory to achieve the RAOs for the site, but were included as an added level of protection. The use of these components would be determined during the remedial design phase, and would be consistent with re-use plans for the WGL area. Refer to Section XII for details.

Post-Closure Monitoring/Maintenance

Post-closure monitoring/maintenance activities (e.g., LTM) associated with the soil cap closure would consist of groundwater and surface water monitoring; inspection of cap and storm water management components; and maintenance of the vegetative cover onsite, including mowing, fertilizing and liming (as needed). LTM requirements are also referred to as Operation and Maintenance (O&M) programs. As presented in Section VIII, site risks do not warrant action with regards to groundwater. Groundwater monitoring, included as part of this alternative, is an essential landfill capping component for post-closure activities.

Groundwater monitoring would be conducted at a minimum of one upgradient and three downgradient groundwater monitoring wells. It is anticipated that existing wells MW-2, 3, 4, and 42 (upgradient), and monitoring wells MW-1, 37, 38, 39, 40S, 40D, and 43 (downgradient), could be well-positioned for LTM, and should be considered if this alternative progresses towards detailed design. Groundwater parameters to be analyzed would include, at a minimum, those appearing in Massachusetts post-closure monitoring regulations (310 CMR 19.142). Inspections would be performed by a Massachusetts-licensed Professional Engineer. Recommendations on any required repairs or maintenance would be forwarded to the Navy. The Navy would be responsible for contracting for those repairs and for contracting the

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

monitoring/maintenance activities. The cost basis for O&M was prepared assuming a 30-year program, quarterly for 2 years, semi-annually for 3 years, and annually for the remaining 25 years.

Five-Year Reviews

This alternative would include an inspection and a review of the site every 5 years. These reviews would include a record review and a site inspection to confirm that the institutional/engineering controls are in place and effective, as well as monitoring to ensure that the wetland restoration efforts are successful. In addition, LTM data would be reviewed every 5 years throughout the LTM program duration.

D. WGL-4: Flexible Membrane Liner (FML) Cover

Alternative WGL-4 focuses on the construction of a FML landfill cover, in contrast to the soil cover included for Alternative WGL-3. In addition, this alternative includes the installation of perimeter fencing and signage, institutional controls, LTM, and 5-year reviews.

This alternative would achieve the RAOs established for minimizing exposure to the landfill surface, restoring the adjacent wetlands, and complying with state and TSCA landfill closure requirements (necessary only in the event of capping).

Similar to the design of Alternative WGL-3, in addition to selecting a suitable cover material (in this case, an FML cap) to achieve landfill closure, leachate and gas management techniques were also considered. However, leachate and gas management as part of landfill closure is not believed to be warranted or practical for the WGL based on the types of waste material present in the landfill. However, soil gas management would be further evaluated as part of a Pre-Design Investigation (PDI), if this alternative were to be selected.

Leachate collection and treatment is not considered practical, primarily because the landfill material within the WGL is located in the saturated zone. That is, the depth of landfill material is, on average, approximately 10 feet bgs, while groundwater, on average, ranges from 1 to 10 feet bgs. Data collected to date reveals that very few contaminants are present in groundwater within the WGL. As such, even though the landfill material within the WGL is in contact with groundwater, it does not appear to be causing groundwater contamination in excess of primary MCLs.

State of Massachusetts closure requirements allow the use of an FML cap in closing landfill facilities. Therefore, this containment alternative includes the use of an FML cap as an alternate option to a soil cover (i.e., Alternative WGL-3). In addition to capping, this alternative includes site preparation, clearing and grubbing, surface water drainage, and post-closure care, all of which are necessary to support the permanence and performance of the FML cap. The following paragraphs describe the components of this alternative.

Because TSCA is being considered as applicable at the WGL, the site will be cleaned up in accordance with 40 CFR Part 761.61.

Clearing, Grubbing, and Grading

To prepare the surface of the site for capping, the surface needs to be cleared of vegetation, and the grades need to be modified to provide a consistent slope to promote surface water drainage and minimize the potential for erosion. Refer to Alternative WGL-3 for details.

Construction of FML Cap

State requirements specify that a final FML cap over a solid waste landfill should have a low-permeability layer, composed of 60-mil (0.06-inch) thick material. To maintain the low permeability characteristics of

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

the material both during installation and over time, it is recommended that the FML be installed on a compacted soil base composed of 6 inches of screened material, having no individual objects of greater than 2 inches.

The FML is installed in a series of panels, seamed together using one of several welding techniques. FMLs are manufactured in both smooth and textured versions. Textured liners are generally used for installation on slopes steeper than 20 to 25%. Based on site topography, a smooth FML is sufficient for use on the site. FMLs are subject to puncture damage by both foot and vehicular traffic. As a result, the FML must be covered with protective soils.

State landfill closure requirements suggest that a total of 24 inches of material be used to form the protective barrier; however, conventional closures within the state have typically specified 20 inches of material composed of 12 inches of drainage sand and 8 inches of topsoil. The drainage sand component is technically required with an FML closure because the FML is essentially impermeable to percolating surface water. Drainage sand is commonly used. Alternatives to using drainage sand include synthetic drainage geocomposites. These materials are generally more expensive than sand; however, they are more stable on steep side-slopes and are more efficient at promoting surface water drainage from the cap. State regulations specify that the drainage layer must be a minimum of 6 inches thick. Modeling of the drainage layer in this region of the country often predicts that at least 9 inches of sand are required to efficiently promote surface water drainage off of the FML cap. The 12-inch sand drainage layer is identified as part of this alternative because it is conventionally accepted that there is some error in placement during construction. Additionally, there is generally some washing of fines from the topsoil layer into the sand layer that occurs, which reduces the overall permeability of the sand layer.

A topsoil layer is typically used as a component of the barrier-protection layer, and supports a vegetative mat on the surface of the final cover. The state requires a minimum of 8 to 9 inches of topsoil to support a vegetative mat. An 8-inch layer is typically used to support vegetative growth because some of the topsoil fines are washed into the drainage sand layer and there needs to be adequate water-retaining capacity of the soil for sustaining root growth and propagation. Soil used for the topsoil layer must meet relevant specifications, including fertilization and liming requirements. During germination, seeded areas would be protected with a mulch or straw mat. If hydroseeding is used (as used in the associated cost estimate), a tackifier may be a substitute erosion control protection measure.

Storm water must be managed such that sedimentation of the adjacent wetlands is limited, and the discharge velocity to the wetlands is low enough to prevent scour. Because of the gentle top and side slopes that an FML cap over the WGL would exhibit, storm water would be managed by sheet-flow off of the side-slopes, with channelized flow and discharge from several exit points at the toe of the landfill. Surface water that percolates to the drainage layer would also be discharged at the toe of slope through a riprap-lined channel. Preliminary calculations show that the post-construction increase in flow can be discharged to the wetland area (west and south of the landfill), as well as to French Stream (east of the landfill) at a maximum rate of 4 feet per second (ft/sec). This value is the recommended maximum discharge velocity for storm water flow discharged into wetlands and water bodies. Based on the topography and sensitive habitat in the immediate vicinity of the WGL, a uniform overland flow distribution would be preferred, rather than a small number of individual point discharges. This may be more difficult to construct using rip-rap lined drainage channels, but it is a consideration that would enhance this alternative if it progresses towards the design phase for implementation.

Wetland Restoration

Similar to Alternative WGL-3, delineated wetland areas from which material would be excavated and/or impacted would require restoration. Refer to Alternative WGL-2 for details.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Fencing and Signage

This alternative includes fencing and signage (physical controls) to limit site access. Refer to Alternative WGL-2 for details. Similar to Alternative WGL-3, these components are not necessary to achieve the RAOs for the site, but were included as an optional added level of protection. The use of these components would be determined during the remedial design phase, and would be consistent with re-use plans for the WGL area.

Institutional Controls

This alternative would require a deed restriction (proprietary control in the form of a restrictive covenant) to provide notice of existing site conditions. Refer to Section XII for details.

Post-Closure Monitoring/Maintenance

Similar to Alternative WGL-3, post-closure monitoring/maintenance (e.g., LTM) activities associated with the FML cap closure consist of groundwater and surface water monitoring; inspection of cap and storm water management components; and maintenance. Inspections would be performed by a Massachusetts-licensed Professional Engineer. Recommendations on any required repairs or maintenance would be forwarded to the Navy. The Navy would be responsible for contracting for those repairs and for contracting the monitoring/maintenance activities.

Five-Year Reviews

Similar to Alternative WGL-3, this alternative would include inspection and review every 5 years. Refer to Alternative WGL-3 for details.

E. WGL-5: Excavation and Offsite Disposal

This alternative consists of excavating the entire contents of the WGL using conventional earth-moving equipment. Further, this alternative is based on the premise that all of the excavated material would be disposed of offsite. Since all materials would be removed from the site, fencing and signage, LTM, and 5-year reviews would not be required for this alternative.

This alternative consists of excavating the entire contents of the landfill for offsite disposal. In landfills where there is a considerable amount of uncontaminated soil, that soil can be beneficially used as onsite daily cover during excavation operations, and later used as clean backfill in the excavation. However, the objective of this alternative is to achieve final closure of the site, with no land use restrictions or monitoring. As such, this alternative assumes that the entire landfill contents (i.e., non-native materials on top of underlying topographic fill) would be removed and transported offsite. Based on the characteristics of the WGL, the following four categories of material are anticipated for offsite transport: daily cover, general debris, low-level impacted PCB material (<50 parts per million [ppm]), and other.

The "other" category is intended to account for unanticipated wastes that may require special handling (e.g., PCB-impacted material >50 ppm, asbestos-containing building material (ACBM), creosote telephone poles, etc.). Although there has been no evidence of these types of wastes within the WGL, this contingency is appropriate when developing the details of this alternative. In addition, the "other" category includes the presence of specific metals, PAHs, or dioxins detected at the WGL that may require special handling. Dioxins, a common offsite disposal concern, have been analyzed and detected at the WGL; however, those concentrations are not anticipated to preclude offsite disposal.

Clean fill (from either an onsite or offsite source) would be used to backfill the excavation to a suitable and erosion-resistant grade. Final cover would include the placement of topsoil and seeding with native

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

wetland vegetation. Since this alternative involves removing the entire landfill contents for offsite disposal, 5-year reviews would not be required.

This alternative would achieve the RAOs established for minimizing exposure to the landfill surface and restoring the adjacent wetlands. As the landfill would be completely removed, state municipal landfill closure regulations would no longer apply.

Clearing, Grubbing, and Grading

As described, the surface of the WGL is currently unpaved, and covered with a mixture of gravel and vegetation. Wetlands bound the majority of the western and southern portions of the WGL. The site is relatively flat with little topographic slope. The area immediately east of the site (between the WGL boundary and French Stream) has a more defined slope, forming the western bank of French Stream. The surface contains some oversized debris, mixed throughout the visible debris on the surface of the site. This debris may require sizing and processing prior to packaging for offsite transport as part of this alternative.

To prepare the area for excavation, the surface area would need to be cleared of vegetation. Vegetative and woody material cleared and grubbed would be chipped and used as fill onsite.

To prevent erosion of excavated materials into the adjacent wetlands, all clearing, grubbing, and grading activities would take place after a perimeter ring of hay bales and a silt fence are installed. These controls would be inspected to ensure that silt depositing behind the bales does not exceed 1/2 of the bale height. If sediment accumulates behind the bales, it would be removed periodically. Following final cover stabilization, but no less than 1 year after construction, the controls would be removed and seed would be sown to provide a continuous vegetative mat across the site.

Excavation and Removal of Landfill Material

Excavation would consist of both wet and dry material (referred to as “in the wet” and “in the dry”). As previously described, the landfill is, on average, 10 feet deep and groundwater is encountered between 1 and 10 feet bgs. Depth to groundwater also varies seasonally. As such, it is advantageous to conduct the excavation work during low water-table conditions (i.e., August). Despite the inherently wet conditions exhibited in the vicinity of the WGL, based on available water table elevation data, it is possible that the majority of landfill contents could be excavated in the dry if the excavation is scheduled in late July to early October. This alternative and cost estimate are based on excavating the majority of the landfill contents in the dry. However, it is likely that localized dewatering will be necessary for deeper portions of the WGL, as well as for the debris to be removed from the adjacent wetlands. Therefore, the contingency line item, added to the cost estimate for this alternative, includes the potential for dewatering.

It is anticipated that a 6-inch screen would be used to separate daily cover from general debris. A grapple attachment on an excavator could be used to “hand-pick” large debris for segregation from the other materials. Disposal characterization would be performed on every 500 cubic yards of segregated material. The total volume of material within the WGL and adjacent wetlands is assumed to be approximately 95,000 cubic yards. There is no cleanup objective (i.e., field screening number) to determine when to stop excavating landfill material, as there are no defined areas within the landfill that warrant removal. Therefore, the decision of when to stop excavating landfill material would be based upon visual inspection (i.e., when native material or underlying topographic fill is encountered). Because TSCA is applicable to the WGL, the site will be cleaned up in accordance with 40 CFR Part 761.61.

For the PCB-impacted material, the cleanup goal would be 1 ppm for costing purposes (i.e., approximate value based on risk-based Preliminary Remediation Goal (PRG) of 0.67 ppm). Per TSCA regulations (40 CFR Part 761), a 3-meter sampling grid is required to characterize the PCB-impacted area prior to

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

excavation, and a second 1.5-meter sampling grid is required to verify that post-excavation conditions meet the cleanup objective (1 ppm in this case).

Because the quantity of material within the landfill is expected to be a significant cost factor for this alternative, and the precise volume at completion is unknown, a contingency line item, added to the cost estimate for this alternative, includes the potential for additional material.

Offsite Disposal of Landfill Material

Based on the data collected during the Phase II RI, the majority of material excavated from the WGL site would require disposal offsite. Materials with detected PCB concentrations below 50 ppm, would be acceptable for disposal within a solid waste landfill. If PCB concentrations above 50 ppm are detected (in this case, repeatable), the PCB-impacted material would have to be contained within a chemical waste landfill or treated prior to disposal in a municipal solid waste landfill. However, the current availability of space is limited, and several facilities have recently closed. As a result, the specific location and cost associated with disposal of the WGL contents is evaluated on the basis of the current availability of facilities. The actual availability of facilities may differ considerably if this alternative is selected and implemented more than 2 years into the future (i.e., 2009).

Backfill to a Suitable Grade

This alternative assumes that the entire landfill contents would be excavated and transported offsite. Rather than backfilling the entire excavation, the site will be backfilled to a suitable grade, and revegetated with native wetland vegetation.

Final slopes created by backfilling must be no more than 20%, from the top of the excavation to the toe of the wetlands. A 20% slope minimizes the amount of on or offsite fill required and is generally considered stable. Conventional earth moving equipment would be used to place and compact the fill material. Lifts of no more than 2 feet would be allowed.

A topsoil layer, consisting of a minimum of 6 inches of organic material, would be placed on top of the compacted fill area. Soil used for the topsoil layer must meet relevant specifications, including fertilization and liming requirements. During germination, seeded areas would be protected with a mulch or straw mat. If hydroseeding is used, a tackifier may be used as a substitute erosion control protection measure.

Because of the gentle top and side-slopes that the excavation would create, and because the vegetated surface would be relatively permeable, storm water would be managed by sheet-flow off of the side slopes, with channelized flow and discharge from several exit points at the toe of the backfilled area. Preliminary calculations show that the post-construction increase in flow can be discharged to the wetland area (west and south of the landfill), as well as to French Stream (east of the landfill) at a maximum rate of 4 feet per second (ft/sec). This value is the recommended maximum discharge velocity for storm water flow discharged into wetlands and water bodies. Based on the topography and sensitive habitat in the immediate vicinity of the WGL, a uniform overland flow distribution would be preferred, rather than a small number of individual point discharges.

Wetland Restoration

Delineated wetland areas from which material would be excavated would require restoration. However, with the aggressive removal of the entire landfill contents, it is likely that more of the wetlands would be impacted during the operations. Refer to Alternative WGL-2 for details.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Institutional Controls

Although this alternative consists of excavating the entire contents of the landfill, and groundwater treatment is not warranted on a risk basis, this alternative includes the implementation of an institutional control for groundwater. This control would prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to humans.

F. WGL-6: Excavation and Containment at New Onsite Location

In contrast to in-place capping or offsite disposal, an alternate option could consist of relocating the landfill to a new location within the NAS South Weymouth property. As this alternative would consist of removing the "CERCLA" site, installation of perimeter fencing and signage, LTM, and 5-year reviews would not be required for the current WGL location. However, state municipal landfill closure regulations would be applicable to the newly constructed landfill. These regulations would stipulate the establishment of institutional controls, as well as an LTM program, for the new landfill. State regulations, however, would not necessitate 5-year reviews, as the CERCLA site would have theoretically been eliminated.

This alternative would achieve RAOs established for minimizing exposure to the current landfill surface and restoring the adjacent wetlands. As the landfill would be completely removed, state municipal landfill closure regulations would no longer apply to the WGL. However, as previously discussed, a new set of rules and regulations would then apply to the newly constructed landfill. The new landfill requirements are relatively stringent; however, it is inherent within this alternative that all of the requirements would be achieved.

Clearing, Grubbing, and Grading

Similar to Alternative WGL-5, to prepare the landfill area for excavation, the surface of the WGL would need to be cleared of vegetation. Vegetative and woody material cleared and grubbed would be chipped and used as fill onsite.

Excavation of Landfill Material

Similar to Alternative WGL-5, excavation would consist of both wet and dry material (referred to as "in the wet" and "in the dry"). Because the WGL could have significant portions below the water table, it is advantageous to conduct the excavation work during low water-table conditions, (i.e., August through October). Again similar to Alternative WGL-5, the contingency cost line-item for this alternative includes provisions for dewatering to access deeper areas within the landfill, as well as landfill debris within the adjacent wetlands.

To avoid placing regulated wastes (i.e., materials requiring provisions beyond those required for solid waste) into the new landfill, characterization of the material excavated from the WGL would be performed. Samples would be collected for every 500 cubic yards of excavated material. The total volume of material contained in the landfill and adjacent wetlands is estimated to be 95,000 cubic yards. As described in Alternative WGL-5, there is no cleanup objective for the landfill material (i.e., field screening number) to determine when to stop excavating since there are no defined areas within the landfill that warrant removal. Therefore, the decision of when to stop excavating would be based upon visual inspection (i.e., when native material or underlying topographic fill is encountered).

Because TSCA is applicable to the WGL, the site will be cleaned up in accordance with 40 CFR Part 761.61. For the PCB-impacted material, the cleanup goal would be 1 ppm for costing purposes. Per TSCA regulations (40 CFR Part 761), a 3-meter sampling grid is required to characterize the

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

PCB-impacted soil prior to excavation, and a second 1.5-meter sampling grid is required to verify that post-excavation conditions meet the cleanup objective (≤ 1 ppm in this case).

Onsite Transport of Landfill Material

Upon siting a new landfill location, the landfill materials would be transported from their present location at the WGL to the new onsite landfill location. This procedure would require some level of staging and segregation for handling purposes, as well as the coordination of observations and analytical characterization in order to appropriately dispose of the material.

Although the intent of this alternative is to transport the entire landfill contents to the new landfill location, some of the material may require offsite disposal. This could be based upon restrictions established during the siting of the new landfill, limiting the ability to place "other" types of materials on site. Based on the data collected to date, very little material excavated from the WGL would require offsite disposal. For cost estimating purposes, it is assumed that the majority of the PCB containing material within the WGL would contain less than 50 ppm total PCBs. This would allow placement of that material in a new landfill that is constructed per state solid waste landfill requirements. Accordingly, based on the percentages of waste types projected to be present in the WGL, it is assumed that approximately 5% of the excavated material would be categorized as "other," thereby warranting offsite transport and disposal as regulated waste. Further, if some of the PCB-impacted material exhibits concentrations greater than or equal to 50 ppm, that material would be disposed of as part of the "other" category. Based on this projection, it is anticipated that 95% of the excavated material (approximately 90,000 cubic yards) would be transported to the new landfill location.

Backfilling of Previous WGL Location

This alternative assumes that the entire WGL contents would be excavated and transported to either the new onsite landfill location or offsite. Rather than backfilling the entire excavation, the site will be backfilled to a suitable grade, and re-vegetated with native wetland vegetation. Refer to Alternative WGL-5 for grading detail.

Wetland Restoration at Previous WGL Location

Similar to Alternative WGL-5, wetlands adjacent to the WGL would require restoration after excavation and backfilling of the landfill. Refer to Alternative WGL-2 for restoration details.

Institutional Controls at Previous WGL Location

Although this alternative consists of excavating the entire contents of the landfill, and groundwater treatment is not warranted on a risk basis, this alternative includes the implementation of an institutional control for groundwater. This control would prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to humans.

Siting and Permitting of New Landfill

In contrast to other landfill capping and consolidation alternatives, this alternative requires formal siting and permitting. Because this action, if selected, would be performed under the context of CERCLA, it is possible that actual permits would be waived; however, the Navy anticipates that full compliance with the substantive requirements of all relevant siting and permitting criteria would be strictly enforced. This administrative step is necessary to ensure that the landfill is constructed in an appropriate location. Criteria used for siting include proximity to 100-year floodplains, depth to groundwater, proximity to rivers, proximity to wetlands, proximity to potentially productive aquifers and Zone II designated areas, and other

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

geologic and hydrogeologic factors. Based on the siting evaluation conducted by the Navy (ENSR, 2001), there appears to be sufficient space for a new landfill within the NAS South Weymouth property.

Engineering Design, Plans, and Specifications for New Landfill

Per state regulations, a collection of plans is required during the landfill siting and permitting process. Plans include a Landfill Site Plan, Hydrogeologic Report, Landfill Design Plan, Landfill O&M Plan, Conceptual Closure Plan, and Conceptual Post-Closure Plan. A presentation of the studies performed (e.g., hydrogeologic study) is required to accompany landfill design plans and construction specifications. Although some level of design is required for the closure of an existing landfill in-place (refer to the other capping and consolidation alternatives), the level of study and design for a newly sited landfill is much more extensive.

Construction of Multi-Layer Liner for New Landfill

A groundwater protection system is required for newly constructed landfills. The protection system includes a subgrade layer, composite liner, drainage layer, leachate collection system, and leachate storage system. State regulations dictate minimum performance requirements for each of these components. These components would not be required for the other capping and consolidation alternatives, only for this new landfill alternative.

Placement of Landfill Material on New Landfill Liner

It is estimated that approximately 95% of the landfill contents would be transported onsite for placement in the new landfill. Based on a projected material volume of 95,000 cubic yards (i.e., 85,000 in landfill and 10,000 in wetlands), approximately 90,000 cubic yards of material would be placed in the new landfill.

Multi-Layer Capping System for New Landfill

In contrast to a simple soil or FML cap design, a new landfill would require a multi-layer cap to satisfy state regulations. Minimum requirements for new landfill caps include a subgrade layer, landfill gas venting layer, low-permeability (e.g., FML) layer, drainage layer, filter material layer, vegetation support layer, and vegetative cover. Other components may also be required based on site-specific conditions.

Fencing and Signage for New Landfill

This alternative would require fencing and signage (physical controls) to limit site access. Refer to Alternative WGL-2 for detail.

Restrictive Covenant for New Landfill

This alternative would require a deed restriction (proprietary control in the form of a restrictive covenant) to provide notice of existing site conditions. This control would include a legal restriction prohibiting digging or other intrusive activities through the landfill.

Post-Closure Monitoring/Maintenance of New Landfill

Similar to the other landfill capping alternatives, LTM would be required by the state for a newly sited landfill. For this alternative, there would be no existing wells to use for monitoring, as the location is new. It is estimated that eight wells would be required for this purpose. Similar to the other landfill capping alternatives, the cost for O&M is based on an assumed 30-year program, quarterly for 2 years, semiannually for 3 years, and annually for the remaining 25 years.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

In addition to groundwater monitoring, surface water, leachate, and gas monitoring would also be required for a new landfill. These components would not likely be required for the other capping and consolidation alternatives, and it would be unlikely that the state would waive them for a newly constructed landfill. The additional monitoring requirements for this alternative would include O&M of the leachate and gas recovery systems, as well as periodic sampling and reporting of waste streams.

For the purposes of cost estimation, it is assumed that leachate generation would be minimal, as the new landfill design would include a multi-layer cap. A leachate collection sump would be constructed to store any leachate (e.g., residual saturation within the landfilled materials, condensation from the liner and capping systems, etc.). Based on the low volume of leachate anticipated, this alternative assumes that the leachate would be transported offsite for disposal.

XI. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

Section 121(b)(1) of CERCLA presents several factors that, at a minimum, the Navy is required to consider in its assessment of the remedial alternatives. Building upon these specific statutory mandates, the NCP articulates nine evaluation criteria to be used in assessing the individual remedial alternatives.

A detailed analysis was performed on the alternatives using the nine evaluation criteria in order to select a site remedy. These criteria are summarized below, followed by a summary of the comparison of each alternative's strengths and weaknesses with respect to the nine evaluation criteria.

Threshold Criteria

The two threshold criteria described below must be met in order for an alternative to be eligible for selection in accordance with the NCP.

1. **Overall protection of human health and the environment** addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls.
2. **Compliance with applicable or relevant and appropriate requirements (ARARs)** addresses whether or not a remedy will meet all Federal environmental and more stringent state environmental and facility siting standards, requirements, criteria or limitations, unless a waiver is invoked.

Primary Balancing Criteria

The following five balancing criteria are used to compare and evaluate the elements of alternatives that meet the threshold criteria against each other.

3. **Long-term effectiveness and permanence** addresses the criteria that are utilized to assess alternatives for the long-term effectiveness and permanence they afford, along with the degree of certainty that they will prove successful.
4. **Reduction of toxicity, mobility, or volume through treatment** addresses the degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume, including how treatment is used to address the principal threats posed by the site.
5. **Short term effectiveness** addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

6. **Implementability** addresses the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
7. **Cost** includes estimated capital and Operation Maintenance (O&M) costs, as well as present-worth costs.

Modifying Criteria

The two modifying criteria are used as the final evaluation of remedial alternatives, generally after EPA has received public comment on the RI/FS and Proposed Plan.

8. **State/Support agency acceptance** addresses the state's position and key concerns related to the preferred alternative and other alternatives, and the state's comments on ARARs or the proposed use of waivers.
9. **Community acceptance** addresses the public's general response to the alternatives described in the Proposed Plan and RI/FS report.

Following the detailed analysis of each individual alternative, a comparative analysis, focusing on the relative performance of each alternative against the nine criteria, was conducted. This comparative analysis can be found in Section 6.0 of the FS (Tetra Tech NUS/ENSR, 2003), and a summary is included as Table 2-11 in this ROD.

The discussion below presents the nine criteria, a brief narrative summary of the alternatives, and the strengths and weaknesses of each alternative according to the detailed and comparative analysis presented in the FS (Tetra Tech NUS/ENSR 2003).

Overall Protection of Human Health and the Environment

Based on the human health and ecological risk assessments completed for the WGL, current and future site conditions exceed human health and ecological risk thresholds, primarily through exposure to the surface of the WGL site.

Alternative WGL-1 would not be protective and would not achieve the RAOs established for the WGL. The limited action that would be performed under Alternative WGL-2 would provide limited protection through grading, slope stabilization, and wetland mitigation. The degree of protection is highly dependent upon maintaining existing ground cover and slope stability.

Based on the evaluation performed in Section 5.0 of the FS, the remaining alternatives (Alternatives WGL-3 through WGL-6) would provide a satisfactory level of overall protection to the environment. In particular, Alternatives WGL-3 and WGL-4 would achieve human and ecological protection primarily through the construction of an in-place cap, in order to achieve the RAOs established for the WGL. In addition, landfill-related wastes which may be present in the wetland area (as indicated by the results of the PDI sampling as well as visible debris) will be removed and placed on the landfill to ensure that the cap has encompassed all waste material. Following receipt of acceptable confirmatory sample results from the wetland, the wetland area(s) disturbed by this removal will be restored to ensure the ecological exposure pathways are eliminated. Conversely, Alternatives WGL-5 and WGL-6 would remove the contents of the landfill, thereby eliminating the current human and ecological exposure potential at the WGL. In addition, toxicity testing will be used to ensure that post-excavation fill material and vegetation do not pose unacceptable toxicity to ecological receptors. However, contrary to Alternative WGL-5 (offsite disposal), Alternative WGL-6 (new onsite landfill) would not fully eliminate the exposure potential from the NAS South Weymouth property, because the waste would be relocated rather than eliminated.

Record of Decision

Naval Air Station South Weymouth

Part 2: The Decision Summary

Compliance with Applicable or Relevant and Appropriate Requirements

Alternatives WGL-1 and WGL-2 would not achieve the TSCA self-implementing or risk-based approach for PCBs. For Alternative WGL-2, the ARARs and TBCs related to the protection of wetlands would be achieved.

Alternatives WGL-3 and WGL-4 (in-place capping) would achieve TSCA-related and state ARARs required for landfill closure. In addition, for Alternatives WGL-3 and WGL-4, the ARARs and TBCs related to the protection of wetlands would be achieved. Further, based on discussions regarding future land re-use, land in the vicinity of the WGL would likely be considered as a low occupancy area (<6.7 hours per week). Therefore, in-place capping with a deed restriction would comply with the TSCA self-implementing cleanup approach, because *in-situ* concentrations of PCBs are less than the 100 ppm TSCA capping limit for a low occupancy area.

As presented in Section 5.0 of the FS, Alternatives WGL-5 and WGL-6 would also comply with all ARARs and TBCs. Alternative WGL-5 (offsite disposal) would result in complete elimination of the landfill as it exists. Alternatives WGL-5 and WGL-6 would also comply with PCB-related ARARs. In addition, ARARs and TBCs related to the protection of wetlands and the management of solid waste would be achieved for each of the alternatives upon implementation.

Long-Term Effectiveness and Permanence

Alternative WGL-1, which does not involve any remedial action, would not be considered to have long-term effectiveness or permanence. Alternative WGL-2 would be considered to have some level of long-term effectiveness and permanence as long as site conditions remain unchanged and maintained. Further, Alternative WGL-2 could provide some degree of protection for both human and ecological receptors, as well as some level of erosion control.

Alternatives WGL-3 through WGL-6 would be considered to have long-term effectiveness and permanence. However, alternative WGL-5 (offsite disposal) and WGL-6 (new onsite location) would be considered to have the greatest degree of permanence, given that all landfill materials would be permanently removed from the site.

Reduction of Toxicity, Mobility, and Volume of Contaminants through Treatment

None of the alternatives developed and considered in this FS include a component of "treatment." However, it should be noted that Alternatives WGL-2, WGL-3, WGL-4, WGL-5, and WGL-6 would provide a reduction in contaminant mobility (physical mobility) by reducing the potential for erosion. Alternative WGL-5 (offsite disposal) and WGL-6 (new onsite location) would provide the greatest reduction in mobility through complete removal and containment of the landfill materials.

Short Term Effectiveness

Alternative WGL-1 would not be considered to have any short-term effectiveness. Alternative WGL-2 would be considered to have some level of short-term effectiveness by deterring trespassers with fencing. Further, Alternative WGL-2 could provide some degree of immediate protection for both human and ecological receptors, as well as some level of erosion control after surface restoration efforts are complete.

Alternatives WGL-3 and WGL-4 (in-place capping) would be effective in achieving site RAOs and reducing potential risks within a relatively short timeframe (1 to 2 years). In-place landfill capping would create minimal disruption to current site conditions, and would be completed relatively quickly.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Alternatives WGL-5 and WGL-6 may not be effective in the short-term, given the substantial amount of site disruption that would occur during excavation activities. This criterion pertains to the alternative's effectiveness in eliminating risks and achieving the other objectives of remediation (refer to Table 2-11). Both alternatives would require a high-level of preventive wetland mitigation efforts, as well as a high-level of noise and dust control during implementation. Subsurface landfill materials, that are currently not posing an exposure concern, would be brought to the surface and potentially expose receptors to new hazards. Engineering and administrative controls would be implemented to reduce adverse impacts; however, these alternatives would create more adverse impacts than the other alternatives developed for the site.

Implementability

Alternatives WGL-1 and WGL-2 require minimal implementation efforts, and thus are considered to be very easily implemented. Alternative WGL-3 (in-place soil cap) is also considered to be relatively easy to implement. Soil capping is a common practice in landfill closure. Alternative WGL-4 (in-place FML cap) is slightly more involved than Alternatives WGL-3, in that it requires specialized labor and techniques to construct.

Alternative WGL-5 (offsite disposal) is not a difficult concept and does not necessarily require specialized labor and techniques. However, the logistics involved with mobilization, excavation, dewatering and water treatment (if required), waste characterization, waste segregation, stockpiling, staging, and all of the other tasks associated with excavation and offsite transport and disposal, are cumbersome.

Alternative WGL-6 (new landfill) is much more cumbersome and logistically difficult than the other alternatives being considered. This alternative has the added task of siting, permitting, and constructing a new landfill. The new landfill would be constructed based on an engineering design, plans, and specifications. Upon approval, the new landfill would include a multi-layer liner, multi-layer cap, and leachate and gas collection systems. Further, in contrast to the other alternatives that would require LTM (Alternatives WGL-3 and WGL-4), Alternative WGL-6 would require the installation of new monitoring wells, as well as the sampling of groundwater, landfill leachate, and landfill gas, as part of its perpetual care.

Cost

The cost estimates for the six alternatives being considered range from \$77,000 (Alternative WGL-1) to \$37.1M (Alternative WGL-6). In general, the alternatives span a range of possible options with a range of associated costs.

Upon inspection of the cost estimates for the in-place capping alternatives (Alternative WGL-3 and WGL-4), the projected costs would be similar. The decision of which type of cover material to use (i.e.,-soil vs. FML) would be based upon the performance objectives for the landfill, rather than the differences in cost. As previously discussed, the soil cap would be more appropriate for the conditions at the WGL, to promote continued aeration and minimize the soluble forms of inorganic chemicals. State landfill closure requirements allow the placement of up to 50 ppm of PCB-impacted material within appropriately-designed municipal solid waste landfills. Provided that land re-use in the vicinity of the WGL is considered a low occupancy use area, either of these alternatives would be appropriate for the site.

State/Support Agency Acceptance

MADEP's statement on the selected remedy is presented in Appendix A.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Community Acceptance

During the public comment period, the community did not express its support for the selected remedy. The majority of community participants in attendance at the June 19, 2007 public hearing, and those who provided written comments, requested that the Navy implement another alternative, Alternative WGL-5: remove and dispose of all WGL materials off-site. Refer to Appendix E for a copy of the verbal and written comments received during the public comment period on the Proposed Plan for the RDA.

Although the Navy is fully committed to serving the community, EPA requires that the Navy consider all *nine* NCP criteria in rendering a final remedial decision. Therefore, the Navy is unable to exclude the first eight criteria from its decision process. As presented in the Proposed Plan and summarized in this Section of the ROD, an evaluation of the first eight criteria reveals that the in-place capping alternatives (Alternatives WGL-3 and WGL-4) are the most appropriate remedies for the WGL. The capping alternatives are protective of human health and the environment, are compliant with ARARs, achieve long-term effectiveness and permanence, achieve short-term effectiveness, can be implemented, are cost effective, and are supported by EPA. Refer to Section XIII of this ROD for more detail relative to these criteria.

After reviewing the input from the community and giving all of the alternatives careful consideration, the Navy has decided that the most appropriate remedy for the site, when considering all nine NCP criteria required by EPA, is Alternative WGL-3: constructing a soil cover over the landfill, LTM, and institutional controls.

XII. THE SELECTED REMEDY

Summary of the Rationale for the Selected Remedy

In summary, the Navy is proposing Alternative WGL-3, constructing a soil cover over the landfill, LTM, and institutional controls. The Navy has concluded that this remedy is protective of human health and the environment, and achieves the overall goals established for the site. The Navy proposes that this remedy be the final remedy for the WGL.

Overall, this alternative will include the following steps:

- Conducting compaction and related testing within the landfill area to properly design and construct a soil cover (i.e., as a part of the design and implementation process).
- Removing landfill-related wastes from the adjacent wetlands and placing on the landfill.
- Clearing the landfill area of trees, brush, and exposed rubble, removing tree stumps, and grading the site.
- Constructing a soil cover on the site meeting Commonwealth of Massachusetts solid waste regulations and federal TSCA PCB regulations. The design goal for the soil cover is to eliminate direct contact with landfill materials.
- Restoring the wetland area that was disturbed during removal of debris from that area.
- Implementing an institutional control to restrict invasive activities (e.g., digging) on the surface of the site.
- Preventing human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to humans.
- Conducting long-term groundwater monitoring and site maintenance.
- Conducting a review of the site every five years.

The South Shore Tri-Town Development Corporation (SSTTDC) prepared a revised reuse plan in 2005 which shows the WGL area zoned as a mixed use area allowing for residential, commercial and retail uses such as convenience stores, restaurants and shops. The zoning for the WGL area approved in 2005 is therefore not limited to housing, and the proposed number of housing units shown in the reuse

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

plan are designated as “illustrative only.” While implementation of this remedy for the WGL will need to be considered in the reuse project development, it clearly does not preclude nor is it inconsistent with some of the uses permitted in the Village Center District, such as public recreation/open space. The remedy for the WGL is incompatible with other uses permitted in the Village Center District, however, such as residential development.

The original approved reuse plan provided to the DoD did not include housing in the WGL area. It will be incumbent upon the Local Redevelopment Authority to take the environmental condition of the property, planned remedial activities, and resource constraints into consideration when developing and implementing the reuse plan.

The Navy will ensure consistency between the LUCs required under the preferred remedy and the proposed reuse plan by imposing deed covenants on the WGL site that will run with the land and pass to the recipient of the property and subsequent owners. Such covenants ensure that LUCs are in place and are legally enforceable upon any recipient. As such, even though the property where the WGL site is located is zoned for mixed use that includes residential, deed covenants which run with the land will prohibit residential use.

Navy evaluated a variety of criteria and followed available EPA guidance documents to select an alternative that would be protective and cost-effective. Capping is recommended in EPA guidance for municipal and military landfills where only low-level threats are present, as is the case at WGL, and where land reuse plans do not indicate that an alternative remedy may be more appropriate. The Navy has determined that the current broad and diverse land reuse plans at WGL do not justify selecting a remedy other than Alternative WGL-3. When constructed, Alternative WGL-3 will be: (1) protective of human health and the environment (achieve the RAOs presented in Section VIII); (2) comply with all pertinent state and federal regulations; (3) provide long-term effectiveness; and (4) provide a cost-effective remedy that can be easily implemented using proven technology. While the other alternatives will achieve the RAOs, they may require more complex steps to implement and would be more costly (see Table 2-11). WGL-3 will also achieve the RAOs and offer comparable protectiveness. Consistent with EPA guidance, the lowest cost option that will be protective and will comply with regulations was selected. Alternative WGL-3 is recommended because it offers the best balance among the criteria used to evaluate the alternatives.

Description of the Remedial Components

Alternative WGL-3 focuses on the construction of a low-permeability soil landfill cover. In addition, this alternative includes the installation of perimeter fencing and signage (optional), institutional controls, LTM, and 5-year reviews.

This alternative would achieve the RAOs established for minimizing exposure to the landfill surface, restoring the adjacent wetlands, and complying with state and TSCA landfill closure requirements (necessary only in the event of capping).

Based on federal and state landfill closure requirements, the construction of a landfill cap using soil is an acceptable, and commonly applied, technique to complete landfill closure. In addition to selecting a soil cap to achieve landfill closure, leachate and gas management techniques were also considered. However, leachate and gas management as part of landfill closure is not warranted or practical for the WGL. Leachate collection and treatment is not considered practical, primarily because the material within the WGL is located in the saturated zone. That is, the material is located from ground surface to approximately 10 feet bgs, while groundwater, on average, ranges from 1 to 10 feet bgs. Data collected to date reveals that very few contaminants are present in groundwater within the WGL. As such, even though the waste material within the WGL is in contact with groundwater, it does not appear to be causing groundwater contamination in excess of primary MCLs.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Similarly, landfill gas collection and treatment is also not considered to be warranted because the nature of the fill material (principally inorganic) is not expected to produce a substantial amount of gas such as methane. However, as discussed below, soil gas management will be further evaluated as part of the PDI.

Based on known site conditions at the WGL, and since TSCA is being considered to apply to the WGL for this FS, a soil cap with a permeability of 1×10^{-7} cm/sec or less would be an appropriate capping alternative according to EPA CERCLA municipal landfill site guidance (EPA, 1991). This alternative would comply with both TSCA and state solid waste landfill closure requirements. In summary, this containment alternative includes the use of a soil cap as an appropriate and cost-effective option. Additionally, this alternative includes site preparation, clearing and grubbing, surface water drainage, and post-closure care, all of which are necessary to support the permanence and performance of the soil cap. Other components include the removal and onsite disposal of debris from adjacent wetland, wetland restoration, LTM, and institutional controls. The following paragraphs describe the components of this alternative, which may be varied slightly during remedial design and implementation, to the extent necessary to comply with engineering standards and state requirements and approvals.

Before implementing the selected remedy, a PDI will be conducted to collect information that the engineers will use to design an effective and protective cover system. PDI activities will involve additional sampling and analysis and surveys of landfill extent, including sampling in wetland areas south and southwest of the landfill, and will provide more accurate estimates of the volume of solid waste and materials that need to be capped, areas to be capped, and identify the extent that landfill materials may have encroached into the wetlands. Landfill gas sampling will be conducted to evaluate the need to include gas management in the remedial design. In addition, a floodplain assessment will be conducted as part of the PDI. The PDI information will be used in conjunction with the RI data during the Remedial Design. After the design is completed, Navy will oversee the construction of the cover to ensure that it is properly constructed. Landfill-related wastes which may be present in the wetland area (as indicated by the results of the PDI sampling as well as visible debris) will be removed and the wetland area disturbed by this removal will be restored following the receipt of acceptable confirmatory sample results from that area(s). Confirmatory sampling will be conducted to ensure that landfill materials and soil exceeding action levels have been removed and consolidated under the cover. The Navy will also implement a long-term groundwater monitoring program to ensure that the constructed remedy is protective.

Clearing, Grubbing, and Grading

The surface of the WGL is unpaved, and covered with a mixture of gravel and vegetation. Wetlands bound the majority of the western and southern portions of the WGL. The site is relatively flat with little topographic slope. The area immediately east of the site (between the WGL boundary and French Stream) has a more defined slope, forming the western bank of French Stream. The surface contains some oversized debris, mixed throughout the visible debris on the surface of the site. This debris may require sizing and processing as part of this alternative. Physical debris observed in wetland areas adjacent to the WGL will be removed for placement on the surface of the disposal area. The areas of the wetlands affected by this removal will be restored.

To prepare the wetland area for excavation, the surface area would need to be cleared of vegetation. Vegetative and woody material cleared and grubbed would be disposed of appropriately. To prevent erosion of excavated materials into the adjacent wetlands, all clearing, grubbing, and grading activities would take place after a perimeter ring of hay bales and a silt fence are installed. These controls would be inspected to ensure that silt depositing behind the bales does not exceed 1/2 of the bale height. If sediment accumulates behind the bales, it would be removed periodically. Following final cover stabilization, but no less than one year after construction, the controls would be removed and seed would be sown to provide a continuous vegetative mat across the site.

Record of Decision Naval Air Station South Weymouth Part 2: The Decision Summary

To prepare the surface of the landfill for capping, the surface needs to be cleared of vegetation, and the grades need to be modified to provide a consistent slope to promote surface water drainage and minimize erosion. Vegetative and woody material cleared and grubbed during site preparation would be chipped and used as onsite fill or would be transported offsite, based on its physical and chemical composition. As was conducted for the wetlands area, all clearing, grubbing, and grading activities would take place after a perimeter ring of hay bales and a silt fence are installed such that the erosion of cap construction materials into the adjacent wetlands is prevented. These controls would be inspected to ensure that silt depositing behind the bales does not exceed 1/2 of the bale height. If sediment accumulates behind the bales, it would be removed periodically. Following final cover stabilization, but no less than one year after construction, the controls would be removed and seed would be sown to provide a continuous vegetative mat across the site.

State and federal regulations specify the minimum slope for capping to be 5%, and the maximum side slope for capping to be 33%. In order to construct a regular cap over the area, irregular fill areas would need to be excavated and consolidated on the upland portion of the site. The side-slopes would be graded to create approximate 15% slopes. Top slopes would be established at approximately 5%. The soils used for grading must be free of debris and have a moderate organic content. Soils must be able to be compacted to form a stable, dense, graded fill. If excavated materials do not provide a suitable volume of soil to provide a base for construction of a soil cap, there may be a need to import soils from elsewhere onsite. To the extent possible, the toe of the slopes created by this grading effort would be designed to end at the current boundary of the adjacent wetlands. This technique would help minimize (or possibly eliminate) a reduction in wetlands that could occur without the proper precautions.

Construction of Soil Cap

Since the Navy has agreed to consider TSCA as an action-specific ARAR, in addition to complying with state requirements, the construction of the soil cap will be designed to comply with the requirements cited under 40 CFR 761.61(a)(7). This citation references 40 CFR 264.310 (a) (closure and post closure care of landfills that contain hazardous wastes) and the parameters (permeability, sieve, liquid limit and plasticity index) listed in 40 CFR 761.75 (b)(1)(ii) through (b)(1)(v). TSCA requirements specify that a soil cap should have a minimum thickness of 10 inches with a maximum permeability of 1×10^{-7} cm/sec. State requirements specify that a soil cap should consist of an 18-inch thick layer of low-permeability soils, with a maximum permeability of 1×10^{-7} centimeters per second (cm/sec). Therefore, to comply with both TSCA technical requirements and state design standards, it is appropriate to propose a low-permeability soil cap with the following specifications:

- Permeability equal to or less than 1×10^{-7} cm/sec [TSCA; 40 CFR Part 761.75 (b)(1)(ii)]
- Percent soil passing No. 200 Sieve > 30% [TSCA; 40 CFR Part 761.75 (b)(1)(iii)]
- Liquid limit > 30% [TSCA; 40 CFR Part 761.75 (b)(1)(iv)]
- Plasticity index > 15 [TSCA; 40 CFR Part 761.75 (b)(1)(v)]
- Minimum compacted cover thickness of 18 inches [310 CMR 19.112 (6)(b)(1)(a)]
- Materials that have a maximum in-place saturated hydraulic conductivity of 1×10^{-7} cm/sec throughout the entire thickness of the layer [310 CMR 19.112 (6)(b)(1)(b)]
- Compacted to minimize void spaces [310 CMR 19.112 (6)(b)(1)(c)]
- Capable of supporting the weight imposed by the post- closure use without settling or causing or contributing to the failure of the low permeability layer [310 CMR 19.112 (6)(b)(1)(d)]
- Free of materials that, because of their physical, chemical or biological characteristics, may cause or contribute to an increase in the permeability of the low permeability layer or otherwise cause a failure of the low permeability layer [310 CMR 19.112 (6)(b)(1)(e)]

To achieve the permeability requirement of 1×10^{-7} cm/sec, a clayey soil will be necessary. Even with this lower permeability, the cover material would still be considered relatively permeable compared to an FML, and a drainage layer on top of it to control surface water is not expected to be necessary. Information collected during the PDI will be used in the remedial design to determine whether a drainage layer is

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

required. The soil cap will be designed to meet Massachusetts solid waste regulations and TSCA requirements. To maintain overall site aesthetics and to prevent erosion of the soil cap, an 8 to 9-inch layer of topsoil will be constructed and seeded to produce a thick and dense vegetative mat. Soil required must meet relevant specifications including fertilization and liming requirements. During germination, seeded areas would be protected with a mulch or straw mat. If hydroseeding is used (as used in the associated cost estimate), a tackifier may be a substitute erosion control protection measure.

Because of the gentle top and side-slopes that a soil cap over the WGL would exhibit, and because the soil cap would be relatively permeable, storm water would be managed by sheet-flow off of the side slopes, with channelized flow and discharge from several exit points at the toe of the landfill. Preliminary calculations show that the post-construction increase in flow can be discharged to the wetland area (west and south of the landfill), as well as to French Stream (east of the landfill) at a maximum rate of 4 feet per second (ft/sec). This value is the recommended maximum discharge velocity for storm water flow discharged into wetlands and water bodies. Based on the topography and sensitive habitat in the immediate vicinity of the WGL, a uniform overland flow distribution would be preferred, rather than a small number of individual point discharges.

Wetland Restoration

Delineated wetland areas adjacent to where earthwork (clearing, grubbing, and grading) is performed would require restoration. Restoration efforts would include, at a minimum:

- Coordination with the local Conservation Commission, the MADEP and the U.S. Army Corps of Engineers, New England District (USACE-NAE);
- Replacement of soils removed with a mixture of loam and organic materials;
- Stabilization of the restored wetlands through the introduction of a seed mixture including native wetland herbaceous species;
- Development of a planting plan which includes the planting of woody species similar to what exists in adjacent undisturbed wetlands; and
- Monitoring of the site for 3 to 5 years to ensure that the area would be restored to wetlands.

Based on visual observations, analytical sampling, and toxicity testing performed during the Phase I and II RI programs, it is estimated that a portion of the palustrine wetlands adjacent to the WGL requires restoration to remove visible debris. The projected volume of impact is 10,000 cubic yards. Activities associated with this alternative to restore the landfill surface (i.e., grading, etc.) are anticipated to necessitate additional restoration efforts around the majority of the landfill perimeter. It is estimated that the area of wetlands requiring restoration will be approximately equivalent to a 20-foot radial extension beyond the currently mapped boundary of the WGL. Although the remedial goal is to remove visible landfill material from wetlands and restore the wetlands impacted by the removal, post-remediation toxicity testing would be performed. Post-remediation toxicity testing will be performed if post-closure confirmatory sampling indicates that contaminant concentrations in surface soil outside the cap are higher than remedial goals as well as ecological benchmarks. A wetland restoration plan will be provided for regulatory review as part of the Remedial Design.

Fencing and Signage

Construction of a perimeter fence, with warning signs posted approximately every 200 feet, would be included in the design for this alternative only if determined to be necessary by Navy, in consultation with EPA and MADEP. Temporary perimeter fencing and signage may be required until the vegetative mat is well established.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Institutional Controls

The Navy will implement institutional controls to achieve the following land use control performance objectives, which are consistent with the Feasibility Study prepared for the Site, the Proposed Plan presented to the community, and further discussions among the Navy, EPA, and MADEP:

- Prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to humans.
- Prohibit activities or uses of the Site that would disturb or otherwise interfere with the integrity or function of the low-permeability soil cap. These prohibited activities include construction on, excavation of, or breaching of the low-permeability soil cap.

The Navy shall implement institutional controls (IC) to achieve the land use control performance objectives. Following the execution of the ROD, the Navy, with concurrence of EPA Region I and in consultation with the MADEP, would develop a remedial design that would contain land use control (LUC) implementation and maintenance actions (the "LUC Remedial Design"). The Navy shall be responsible for implementing, inspecting, reporting, and enforcing the institutional controls described in this ROD in accordance with the approved LUC Remedial Design. Should any institutional control component of the selected remedy fail, the Navy would ensure that appropriate actions are taken to reestablish the selected remedy's protectiveness. The Navy may transfer various operational responsibilities for these actions to other parties through contracts, agreements and/or deed restrictions. However, the Navy acknowledges its ultimate liability under CERCLA for remedy integrity, including for the performance of any transferred operational responsibilities.

The purpose of these institutional controls would be to control or restrict certain types of property uses. The institutional control objectives are contained in each alternative. The institutional controls are necessary because hazardous substances could otherwise pose potential risks if property use was not controlled or restricted. The institutional controls would be maintained within the approximate boundaries of the WGL shown in Figure 2-3. The site boundaries will be further defined during the PDI and remedial design. The institutional controls would be maintained until the concentrations of hazardous substances have been reduced to levels that allow for unlimited exposure and unrestricted use, as determined by long-term monitoring at the WGL.

The Navy's remedial design shall ensure that the Navy, in implementing the land use controls, provides that a regulatory agency satisfactory to EPA, with the concurrence of MADEP, may acquire an irrevocable right to enforce the land use controls directly against all current and future owners of any interest in the property, for as long as the land use controls are required, and an associated access easement, both of which may be assignable. This enforcement right would supplement, not replace, the Navy's right and responsibility to enforce the institutional controls, described above. If the remedial design provides for this enforcement right and access easement to be granted or assigned to MADEP, (i) acceptance of any grant shall be subject to approval of the Commissioner of MADEP or other designated state official and (ii) the form of the land use controls and the process of implementation shall be satisfactory to MADEP and, to the extent applicable, such form shall be substantially the same as Form 1072A ("Grant of Environmental Restriction") of the Massachusetts Contingency Plan, 310 Code of Massachusetts Regulations 40.1099 and such implementation shall comply with the survey plan, subordination and title requirements set forth in 310 Code of Massachusetts Regulations 40.1071 and 40.1072(2).

Post-Closure Monitoring/Maintenance

Post-closure monitoring/maintenance activities (e.g., LTM) associated with the soil cap closure would consist of groundwater and landfill gas monitoring (if landfill vents are present); inspection of cap and storm water management components; and maintenance of the vegetative cover onsite, including mowing, fertilizing and liming (as needed). LTM requirements are also referred to as Operation and

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Maintenance (O&M) programs. Site risks do not warrant action with regards to groundwater. Groundwater monitoring, included as part of this alternative, is an essential landfill capping component for post-closure activities.

Groundwater monitoring would be conducted at a minimum of one upgradient and three downgradient groundwater monitoring wells. It is anticipated that existing wells MW-2, 3, 4, and 42 (upgradient), and monitoring wells MW-1, 37, 38, 39, 40S, 40D, and 43 (downgradient), could be well-positioned for LTM, and should be considered if this alternative progresses towards detailed design. Groundwater parameters to be analyzed would include, at a minimum, those appearing in Massachusetts post-closure monitoring regulations (310 CMR 19.142). Inspections would be performed by a Massachusetts-licensed Professional Engineer. Recommendations on any required repairs or maintenance would be forwarded to the Navy. The Navy would be responsible for contracting for those repairs and for contracting the monitoring/maintenance activities. The cost basis for O&M was prepared assuming a 30-year program, quarterly for 2 years, semi-annually for 3 years, and annually for the remaining 25 years.

Details regarding the scope, including pertinent media and monitoring parameters, and the duration of LTM will be provided in the LTM plan for the site.

Five-Year Reviews

This alternative would include an inspection and a review of the site every 5 years. These reviews would include a record review and a site inspection to confirm that the institutional/engineering controls are in place and effective, as well as monitoring to ensure that the wetland restoration efforts are successful. In addition, LTM data would be reviewed every five years throughout the LTM program duration.

The primary objective of the 5-year reviews would be to assess the continued applicability of the alternative selected, and to consider modifications to that alternative or the implementation of a different alternative, in the event that site conditions change. The 5-year reviews could vary from visual inspection of changes in site conditions (e.g., erosion, wetland growth, drainage), to recalculating risks, collecting samples for analysis, and preparing substantial reports to model cleanup trends.

Summary of the Estimated Remedy Costs

Table 2-12 presents a summary of the capital costs, annual operation and maintenance costs, and periodic costs associated with the selected remedy as presented in the FS.

The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative as detailed in the FS. Changes in the cost elements are likely to occur as a result of new information and data collected during the PDI and the engineering design of the remedial alternative. The estimate provided on the table is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

In calculating LTM costs, a net present value was used to put all estimated expenditures in today's dollars. Pursuant to the references in EPA Guidance, A Guide to Developing and Documenting Cost Estimates During the Feasibility Study, EPA 540-R-00-002 (EPA, 2000), a 4% discount rate was used for analyzing on-going costs. This rate was the average of all of the "real discount rates" options in the U.S. Office of Management and Budget (OMB) circular A-94 (January 2000 edition) at the time of initial cost estimation (Fall 2000) for the FS. Further, in calculating present value costs, it was assumed that there would be no inflation of the annual dollar amounts. In addition, according to EPA guidance (EPA, 2000) there is no limit on the term for analyzing on-going costs; therefore, a 30-year operation and maintenance period was assumed for the LTM program for cost comparison purposes. This assumption is consistent with previous EPA costing guidance (EPA, 1988) and is consistent with common liability insurance caps. The FS cost estimates have been updated to reflect a 2005 net present value.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Expected Outcomes of the Selected Remedy

The expected outcomes of the selected remedy are to: (1) minimize erosion and deposition of waste materials into the adjacent wetlands; (2) eliminate the potential for human and ecological exposure to the surface of the landfill; (3) remove visible landfill material from the wetland adjacent to the WGL landfill; (4) close the WGL in accordance with Massachusetts solid waste landfill closure requirements and TSCA requirements; and (5) eliminate human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to humans. Approximately 1 to 2 years are estimated as the time necessary to achieve these goals. The selected remedy will also provide environmental and ecological benefits such as wetland restoration and the protection of wildlife.

Current land reuse and zoning plans show the proposed future use of the WGL area as mixed use. In the reuse plan much of the WGL site is zoned as part of the Village Center District that allows high-density development, including residential uses. The Navy will ensure consistency between the LUCs required under the selected remedy and the proposed reuse plan by imposing deed covenants on the WGL site that will run with the land and pass to the recipient of the property and subsequent owners. Such covenants ensure that LUCs are in place and are legally enforceable upon any recipient. As such, even though the property where the WGL site is located is zoned for mixed use that includes residential, deed covenants which run with the land will prohibit residential use and ensure low occupancy use, in accordance with TSCA. The LUCs will be necessary to prevent contact with contaminated media remaining on-site. By preventing contact with contaminants left on-site, human and ecological risks are reduced to zero.

As described in Section VII, a baseline human health and ecological risk assessment was conducted during the RI. The human health portion of the baseline risk assessment concluded that potential risks for humans being exposed to sediment or surface water at the WGL were not anticipated.

Cleanup Levels for Groundwater

The risk assessment concluded there are potential risks to hypothetical future receptors (on-site residents) from 1,4-dioxane, arsenic, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, hexachlorobenzene, indeno(1,2,3-cd)pyrene, and chromium in groundwater. Remedial goals have been established for these chemicals as the federal MCLs or non-zero MCLGs established under the Safe Drinking Water Act, or, if lower, the state MCL established by the Massachusetts Office of Research and Standards. In the absence of such standards, a remedial goal was established based on a level that represents an acceptable exposure level to which the human population, including sensitive subgroups, may be exposed without adverse affect during a lifetime or part of a lifetime. If a remedial goal was established, the calculation included an adequate margin of safety (i.e., a hazard quotient equal to 1) and considered the future ingestion of groundwater from domestic water usage. Table 2-13 summarizes the remedial goals for the chemicals of concern identified in groundwater.

Subsequent to identifying remedial goals, the Navy conducted an evaluation to assess whether a remedial action was warranted for these chemicals (refer to Section 3.5.6 of the FS (Tetra Tech NUS/ENSR, 2003)). Based upon the evaluation performed, the Navy and EPA agreed that a groundwater remedy was not necessary for the following reasons:

- Arsenic and dibenz(a,h)anthracene were found in only one groundwater sample collected at the site. Also, the arsenic concentration was less than the state and federal standards for public drinking water supplies.
- Chromium was detected at concentrations below state and federal standards for public drinking water supplies.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

- The remedy selected for the WGL includes LTM of groundwater and surface water as a component of landfill closure to allow for continued assessment of the adequacy, reliability, and long-term effectiveness of this alternative.

Overall, existing groundwater data for the WGL indicates that active remediation (e.g., a pump and treat system) is not necessary to address site groundwater.

Cleanup Levels for Surface Soil

The risk assessment concluded potential risks to current receptors (trespassing children, on-site workers, and construction workers) and hypothetical future receptors (the recreational child and on-site residents) from PCBs, benzo(a)pyrene, benzo(a)anthracene, arsenic, dibenzo(a,h)anthracene, dieldrin, dioxins, and lead in surface soil. In the absence of any chemical-specific ARARs, remedial goals for soil have been established. Remedial goals were established based on levels that represent an acceptable exposure level to which the human population, including sensitive subgroups, may be exposed without adverse affect during a lifetime or part of a lifetime. Calculations that established remedial goals included an adequate margin of safety (i.e., a hazard quotient equal to 1) and considered the exposure of future receptors to soil. Table 2-14 summarizes the remedial goals for the chemicals of concern identified in surface soil.

XIII. STATUTORY DETERMINATIONS

The remedial action selected for implementation at the WGL is consistent with CERCLA, and, to the extent practicable, the NCP. The selected remedy is protective of human health and the environment, complies with ARARs and is cost effective. In addition, the selected remedy utilizes permanent solutions to the maximum extent practicable.

The Selected Remedy Is Protective of Human Health and the Environment

Entering a deed restriction on the use of the NAS South Weymouth property would restrict the use of the property in the vicinity of the WGL. If determined to be necessary, construction of a perimeter fence with hazard signs would provide an added level of site security by limiting trespassers from entering the site. Construction of a soil cap would protect human health and ecological receptors by creating a physical barrier to landfill material, including chemicals detected in surface soil that pose potential risks. Visual confirmation will be used to ensure that the cap has encompassed all waste materials, and that the ecological exposure pathways are eliminated. Groundwater and surface water monitoring (although not required on a risk basis) are an essential landfill capping component that would provide water quality data, and allow an ongoing assessment of the impacts of this alternative.

This alternative could possibly pose minimal short term and cross-media impacts (i.e., disturbance of the adjacent wetlands, and possible deposition of soil to surface water) during surface restoration activities. However, these impacts would be relatively minor, as precautions would be applied to minimize wetland and other disruptions during implementation. Wetland restoration efforts would follow site work, to restore and enhance wetland conditions.

The Selected Remedy Complies with ARARS

The selected remedy will comply with all federal and state ARARs that pertain to the site. In addition, TBCs will also be considered during the implementation of the remedial action. In particular, this remedy will comply with the federal and state ARARs and TBCs listed and described in Appendix F. A discussion of why these requirements are applicable or relevant and appropriate may be found in Section 3.2 of the FS report (Tetra Tech NUS/ENSR. 2003).

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

This remedy is designed to achieve landfill closure and TSCA-related ARARs. In particular, a soil cap with a permeability of 1×10^{-7} cm/sec or less complies with both TSCA and state landfill closure requirements. Wetland mitigation and restoration efforts will also achieve associated ARARs and TBCs (see Appendix F).

The Selected Remedy is Cost Effective

In the Lead Agency's judgment, the selected remedy is cost effective because the remedy's costs are proportional to its overall effectiveness (see 40 CFR 300.430(f)(1)(ii)(D)). This determination was made by evaluating the overall effectiveness of those alternatives that satisfied the threshold criteria (i.e., that are protective of human health and the environment and comply with all federal and any more stringent ARARs, or as appropriate, waive ARARs). Overall effectiveness was evaluated by assessing three of the five balancing criteria — long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness, in combination. The overall effectiveness of each alternative then was compared to the alternative's costs to determine cost effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs and hence represents a reasonable value for the money to be spent. Refer to Table 2-11 for the cost of each remedial alternative considered. Note that the FS cost estimates have been updated to reflect a 2005 net present value.

The Selected Remedy Utilizes Permanent Solutions and Alternative Treatment or Resource Recovery Technologies to the Maximum Extent Practicable

Based upon conditions at the WGL, no alternative treatment or resource recovery technologies were evaluated for the site. Only containment and removal technologies were deemed potentially applicable to the WGL.

The Selected Remedy does not Satisfy the Preference for Treatment as a Principal Element

Treatment technologies that "reduce the toxicity, mobility, and volume of contaminants" are typically given considerable thought in an FS. However, based on the conditions at the WGL, no treatment technologies were retained for the WGL (refer to Section 4.2 of the FS (Tetra Tech NUS/ENSR, 2003)). Only containment and removal technologies were deemed potentially applicable to the WGL.

Five-Year Reviews of the Selected Remedy are Required

Because this remedy will result in substances remaining onsite above levels that allow for unlimited use and unrestricted exposure, a review will be conducted within 5 years after initiation of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Details on the scope and duration of the 5-year review period will be considered during the development of the LTM plan for the WGL.

XIV. DOCUMENTATION OF NO SIGNIFICANT CHANGES

The Navy presented a Proposed Plan for the construction of a soil cap over the landfill material, removal of landfill material from the wetland area, LTM and institutional controls to the public on June 14, 2007. After the public comment period (which closed on July 6, 2007), the Navy reviewed all written and verbal comments submitted during the public comment period.

During the public comment period, the community did not express its support for the selected remedy. The majority of community participants in attendance at the June 19, 2007 public hearing, and those who provided written comments, requested that the Navy implement an alternate approach, consisting of

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

Alternative WGL-5: Remove and dispose of all WGL materials off-site. Although the Navy is fully committed to serving the community, EPA requires that the Navy consider all *nine* NCP criteria in rendering a final remedial decision. An evaluation of the first eight criteria reveals that the in-place capping alternatives (Alternatives WGL-3 and WGL-4) are the most appropriate remedies for the WGL. The capping alternatives are protective of human health and the environment, are compliant with ARARs, achieve long-term effectiveness and permanence, achieve short-term effectiveness, can be implemented, are cost effective, and are supported by EPA. Refer to Section XIII. During the FS, EPA expressed preference for Navy's selected remedy. Therefore, it was determined that no significant changes to the decision, as originally identified in the proposed plan, were necessary.

XV. STATE ROLE

MADEP has reviewed the various alternatives. MADEP has also reviewed the RI and FS to determine if the selected remedy is in compliance with applicable or relevant and appropriate state environmental and facility siting laws and regulations. MADEP's statement on the selected remedy in this ROD is presented in Appendix A.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

TABLE 2-1
SUMMARY OF OPERABLE UNITS

| Site | IR Program Site Designation | Operable Unit Designation | Site Abbreviation | Site Description | Regulatory Status (as of August 2007) |
|------------------------------------------|-----------------------------|-----------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| West Gate Landfill | 1 | 1 | WGL | Disposal area used for a variety of construction and demolition debris, municipal, and other waste materials. | PA, SI, RI, and FS completed. PRAP issued May 2007. |
| Rubble Disposal Area (Upland) | 2 | 2 | RDA | Disposal area used for primarily building demolition debris. | PA, SI, RI, FS, PRAP, ROD, Remedial Design, Remedial Action including excavation and offsite disposal of PCB-impacted material, construction of a soil cap for the landfill material, long-term monitoring, and institutional controls is completed and long-term monitoring is underway. |
| Small Landfill | 3 | 3 | SL | Disposal area used primarily for concrete, metal, and wood. | PA, SI, RI, PRAP, and ROD (No Action with groundwater monitoring) completed. Monitoring program completed. Closure under MA Solid Waste Regulations is underway. |
| Fire Fighting Training Area | 4 | 4 | FFTA | Area designated for dispensing fuels for igniting and extinguishing fires. | PA, SI, and RI completed. No FS required. PRAP and No Action ROD completed, site transferred to MCP. MCP assessment to be completed in 2007. |
| Tile Leach Field | 5 | 5 | TLF | Sand bed used to receive and distribute treated industrial wastewater. | PA, SI, and RI completed. No FS required. PRAP and No Action ROD completed. |
| Fuel Farm | 6 | Not applicable (no longer CERCLA) | None | Tank farm and fuel dispensing area. | Site transferred into the MCP program based on exhibiting only fuel-related issues. |
| Sewage Treatment Plant | 7 | 7 | STP | Wastewater treatment plant used primarily for domestic wastewater. | PA, SI, RI, and FS completed. PRAP issued August 2007. |
| Abandoned Bladder Tank Fuel Storage Area | 8 | 8 | ABTFSA | Area in which aboveground tanks temporarily were stored in support of aircraft refueling training operations. | PA, SI, RI completed. No FS necessary. Completed PRAP and No Action ROD. |
| Rubble Disposal Area | 2 | 9 | RDA | Steep sloping area adjacent to the RDA. | Combined with OU-2. No separate actions being performed. |
| Building 81 | 9 | 10 | None | Release of solvents from former motor pool. | Former MCP site moved to CERCLA program. Conducted <i>in situ</i> chemical oxidation pilot study for groundwater. RI Report to be issued summer 2007. |
| Building 82 | 10 | 11 | None | Release of solvents from former aircraft hangar operations. | Former MCP site moved to CERCLA program. RI Report to be issued summer 2007. |
| Solvent Release Area | 11 | 12 | SRA | Release of solvents from unidentified source. | Former EBS background location moved to CERCLA program. RI Report underway. |

NOTES:

PA = Preliminary Assessment.

SI = Site Inspection.

RI = Remedial Investigation (Phase I and II).

FS = Feasibility Study.

PRAP = Proposed Remedial Action Plan.

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act.

ROD = Record of Decision.

MCP = Massachusetts Contingency Plan.

OU = Operable Unit.

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

**TABLE 2-2
POTENTIAL (i.e., LOW-LEVEL) THREATS**

| Contaminants | Medium | Receptor | Action to be Taken |
|----------------------------------------------------------------------|--------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cadmium Lead Total PCBs Total PAH Dioxins | Surface Soil | Small mammals, terrestrial invertebrates, and birds | Construction of a soil cap to protect ecological receptors from exposure to landfill material. |
| Arsenic Cadmium Total PCBs Dioxin Total PAHs Dieldrin | Surface Soil | Humans | Construction of a soil cap to protect human receptors from exposure to landfill material, long term monitoring, and institutional controls. |
| Arsenic Chromium Dibenz(a,h)anthracene | Groundwater | Humans | Based upon minimal potential risks posed, and conservative assumptions used during the risk assessment, groundwater treatment is not necessary for the WGL. However, a long-term groundwater monitoring program and institutional controls to prevent exposure to groundwater are included as part of the selected remedy. |

**TABLE 2-3
SUMMARY OF CHEMICALS OF CONCERN AND
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATIONS**

| Scenario Timeframe: Current and Future | | | | | | | |
|----------------------------------------|----------------------------------|--------------------------------|-------|------------------------|------------------------------|-------|---------------------|
| Exposure Point | Chemical of Concern | Maximum Detected Concentration | Units | Frequency of Detection | Exposure Point Concentration | Units | Statistical Measure |
| Surface Soil | Arsenic | 3.2E+01 | mg/kg | 17/17 | 1.0E+01 | mg/kg | 95% UCL |
| | Benzo(a)anthracene | 7.6E+00 | mg/kg | 16/17 | 7.6E+00 | mg/kg | Max |
| | Benzo(a)pyrene | 3.4E+00 | mg/kg | 15/16 | 3.4E+00 | mg/kg | Max |
| | Dibenz(a,h)anthracene | 7.9E-01 | mg/kg | 13/16 | 7.6E-01 | mg/kg | 95% UCL |
| | Dieldrin | 2.3E-01 | mg/kg | 11/16 | 2.3E-01 | mg/kg | Max |
| | Lead* | 4.4E+03 | mg/kg | 17/17 | 7.5E+02 | mg/kg | Mean |
| | Total 2,3,7,8-TCDD TEQ (Dioxins) | 1.3E-04 | mg/kg | 3/3 | 1.3E-04 | mg/kg | Max |
| | Total PCBs | 5.5E+01 | mg/kg | 13/17 | 5.5E+01 | mg/kg | Max |
| Groundwater | 1,4-Dioxane | 1.5E-02 | mg/L | 1/1 | 1.5E-02 | mg/L | Max |
| | Arsenic | 4.6E-03 | mg/L | 1/8 | 4.6E-03 | mg/L | Max |
| | Benzo(a)anthracene | 1.0E-03 | mg/L | 1/5 | 1.0E-03 | mg/L | Max |
| | Benzo(b)fluoranthene | 9.0E-04 | mg/L | 1/5 | 9.0E-04 | mg/L | Max |
| | Chromium | 7.1E-02 | mg/L | 3/8 | 7.1E-02 | mg/L | Max |
| | Dibenz(a,h)anthracene | 1.0E-03 | mg/L | 1/5 | 1.0E-03 | mg/L | Max |
| | Hexachlorobenzene | 3.0E-04 | mg/L | 1/5 | 3.0E-04 | mg/L | Max |
| | Indeno(1,2,3-cd) pyrene | 2.0E-04 | mg/L | 1/5 | 2.0E-04 | mg/L | Max |

NOTES:

95% UCL — 95% Upper Confidence Limit of the mean

Max — Maximum concentration

- Lead was assessed using the IEUBK model

Frequency of Detection displayed as: number of detected values/ total number of samples collected, not including duplicates.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

TABLE 2-4
POTENTIAL CARCINOGENIC TOXICITY DATA SUMMARY FROM HUMAN HEALTH RISK ASSESSMENT

| Chemical of Concern | Oral Cancer Slope Factor (c) (mg/kg-day) ⁻¹ | Reference (Last Verified) | Inhalation Cancer Slope Factor (mg/kg-day) ⁻¹ | Reference (Last Verified) | Weight of Evidence Cancer Guideline Description |
|------------------------|--------------------------------------------------------|---------------------------|----------------------------------------------------------|---------------------------|-------------------------------------------------|
| 1,4-Dioxane | 1.1E-02 | IRIS (6/00) | NA | NA | B2 |
| Arsenic | 1.5E+00 | IRIS (6/00) | 1.5E+01 | IRIS (6/00) (b) | A |
| Benzo(a)anthracene | 7.3E-01 | (a) | 3.1E-01 | (a) | B2 |
| Benzo(a)pyrene | 7.3E+00 | IRIS (6/00) | 3.1E+00 | RBC (4/00) | B2 |
| Benzo(b)fluoranthene | 7.3E-01 | (a) | 3.1E-01 | (a) | B2 |
| Chromium VI | NA | NA | 4.1E+01 | HEAST(97) | A |
| Dibenz(a,h)anthracene | 7.3E+00 | (a) | 3.1E+00 | (a) | B2 |
| Dieldrin | 1.6E+01 | IRIS (6/00) | 1.6E+01 | IRIS (6/00) (b) | B2 |
| Hexachlorobenzene | 1.6E+00 | IRIS (6/00) | 1.6E+00 | IRIS (6/00) | B2 |
| Indeno(1,2,3-cd)pyrene | 7.3E-01 | (a) | 3.1E-01 | (a) | B2 |
| Total 2,3,7,8-TCDD TEQ | 1.5E+05 | HEAST (97) | 1.5E+05 | HEAST (97) | B2 |
| Total PCB | 2.0E+00 | IRIS (6/00) | 2.0E+00 | IRIS (6/00) (b) | B2 |

NOTES:

HEAST: Health Effects Assessment Summary Tables, EPA (1997)

IRIS: Integrated Risk Information System, an online computer database of toxicological information (EPA, 2000)

NA: Not available

RBC: Region III Risk based concentration table (EPA, 2000)

(a): CSF for Benzo(a)pyrene multiplied by appropriate Toxicity Equivalence Factor

(b): Converted from unit risk of 1/ug/m³ to an inhalation CSF of 1/mg/kg-day

(c): In accordance with EPA guidance, dermal slope factors were based on the oral slope factors for these chemicals. Different absorption adjustment factors were used for the oral and dermal exposure routes.

A: Human carcinogen

B1: Probable human carcinogen — Indicates limited evidence of carcinogenicity in humans

B2: Probable human carcinogen — Indicates sufficient evidence in animals or no evidence in humans

C: Possible human carcinogen

D: Not classifiable as a human carcinogen

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

**TABLE 2-5
POTENTIAL NON-CARCINOGENIC TOXICITY DATA SUMMARY FROM HUMAN HEALTH RISK ASSESSMENT
CHRONIC EXPOSURE THROUGH INGESTION**

| Chemical of Concern | Oral Dose-Response Value* (mg/kg-day) | Target Organ/ Critical Effect at LOAEL | EPA Confidence Level | Reference (Last Verified) |
|-------------------------|---------------------------------------|-------------------------------------------------------------------|----------------------|---------------------------|
| 1,4-Dioxane | NA | NA | NA | NA |
| Arsenic | 3.0E-04 | Hyperpigmentation, keratosis, and possible vascular complications | NA | IRIS (6/00) |
| Benzo(a)anthracene | 3.0E-02 | Kidney effects | Low | IRIS (6/00)(a) |
| Benzo(a)pyrene | 3.0E-02 | Kidney effects | Low | IRIS (6/00)(a) |
| Benzo(b)fluoranthene | 3.0E-02 | Kidney effects | Low | IRIS (6/00)(a) |
| Chromium VI | 3.0E-03 | No adverse effects | NA | IRIS (6/00)(b) |
| Dibenz(a,h)anthracene | 3.0E-02 | Kidney effects | Low | IRIS (6/00)(a) |
| Dieldrin | 5.0E-05 | Liver lesions | Medium | IRIS (6/00) |
| Hexachlorobenzene | 8.4E-04 | Liver effects | Medium | IRIS (6/00) |
| Indeno(1,2,3-cd) pyrene | 3.0E-02 | Kidney effects | Low | IRIS (6/00)(a) |
| Total 2,3,7,8-TCDD TEQ | NA | NA | NA | NA |
| Total PCB | 2.0E-05 | Reduced birth weights | Medium | IRIS (6/00)(c) |

NOTES:

IRIS: Integrated Risk Information System, an online computer database of toxicological information (EPA, 2000)

LOAEL: Lowest observed adverse effects level

NA: Not available

(a): Dose response value for pyrene, based on structural similarity

(b): RfD for chromium VI

(c): RfD for Aroclor 1254

*In accordance with EPA guidance, dermal slope factors were based on the oral slope factors for these chemicals. Different absorption adjustment factors were used for the oral and dermal exposure routes.

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

**TABLE 2-6
POTENTIAL NON-CARCINOGENIC TOXICITY DATA SUMMARY FROM HUMAN HEALTH RISK ASSESSMENT
SUBCHRONIC EXPOSURE THROUGH INGESTION**

| Chemical of Concern | Oral Dose-Response Value* (mg/kg-day) | Target Organ/ Critical Effect at LOAEL | EPA Confidence Level | Reference (Last Verified) |
|----------------------------|----------------------------------------------|-------------------------------------------------------------------|-----------------------------|----------------------------------|
| 1,4-Dioxane | NA | NA | NA | NA |
| Arsenic | 3.0E-04 | Hyperpigmentation, keratosis, and possible vascular complications | NA | HEAST 97(d) |
| Benzo(a)anthracene | 3.0E-02 | Kidney effects | Low | IRIS (6/00)(a) |
| Benzo(a)pyrene | 3.0E-02 | Kidney effects | Low | IRIS (6/00)(a) |
| Benzo(b)fluoranthene | 3.0E-02 | Kidney effects | Low | IRIS (6/00)(a) |
| Chromium VI | 2.0E-02 | No adverse effects | NA | HEAST (97)(b) |
| Dibenz(a,h)anthracene | 3.0E-02 | Kidney effects | Low | IRIS (6/00)(a) |
| Dieldrin | 5.0E-05 | Liver lesions | NA | HEAST 97(d) |
| Hexachlorobenzene | 8.4E-04 | Liver effects | Medium | IRIS (6/00) |
| Indeno(1,2,3-cd) pyrene | 3.0E-02 | Kidney effects | Low | IRIS (6/00)(a) |
| Total 2,3,7,8-TCDD TEQ | NA | NA | NA | NA |
| Total PCB | 5.0E-05 | Reduced birth weights | Medium | HEAST 97(c,d) |

NOTES:

HEAST: Health Effects Assessment Summary Tables, EPA (1997)

IRIS: Integrated Risk Information System, an online computer database of toxicological information (EPA, 2000)

LOAEL: Lowest observed adverse effects level

NA: Not available

(a): Dose response value for pyrene, based on structural similarity

(b): RfD for chromium VI

(c): RfD for Aroclor 1254

(d): Subchronic RfD

*In accordance with EPA guidance, dermal slope factors were based on the oral slope factors for these chemicals. Different absorption adjustment factors were used for the oral and dermal exposure routes.

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

**TABLE 2-7
SUMMARY OF HUMAN HEALTH RISK ASSESSMENT**

| Scenario Evaluated | Medium | Total Carcinogenic Risk (statistical chance) | Total Non-Carcinogenic Risk (hazard index) |
|----------------------------------------|-----------------------|----------------------------------------------|--------------------------------------------|
| Onsite Worker | | | |
| Ingestion/Dermal Contact | Surface Soil | 2.2E-05 | 1.22 |
| | Sediment | 1.1E-07 | 0.0011 |
| | Surface Water | NC | 0.00023 |
| | Wetland Sediment | 4.1E-08 | 0.00025 |
| | Wetland Surface Water | 2.5E-09 | 0.00025 |
| <i>Onsite Worker Total</i> | | <i>2.2E-05</i> | <i>1.22⁽²⁾</i> |
| Construction Worker | | | |
| Ingestion/Dermal Contact | Surface Soil | 1.4E-06 | 0.9 |
| | Subsurface Soil | 3.5E-07 | 0.076 |
| Inhalation | Surface Soil | 3.5E-07 | 0.3 |
| | Subsurface Soil | 1.1E-07 | 0.0067 |
| <i>Construction Worker Total</i> | | <i>2.3E-06</i> | <i>1.33⁽²⁾</i> |
| Trespassing Child | | | |
| Ingestion/Dermal Contact | Surface Soil | 1.2E-05 | 1.61 |
| | Sediment | 5.7E-07 | 0.01 |
| | Surface Water | NC | 0.01 |
| | Wetland Sediment | 2.2E-07 | 0.003 |
| | Wetland Surface Water | 2.5E-08 | 0.01 |
| <i>Trespassing Child Total</i> | | <i>1.2E-05</i> | <i>1.7⁽²⁾</i> |
| Future Resident | | | |
| Ingestion/Dermal Contact | Surface Soil | 1.1E-04 | 17.8 |
| | Sediment | 2.2E-06 | 0.1 |
| | Surface Water | NC | 0.02 |
| | Wetland Sediment | 8.7E-07 | 0.02 |
| | Wetland Surface Water | 4.8E-08 | 0.04 |
| Ingestion | Groundwater | 2.4E-04 | 2.5 |
| <i>Future Resident Total</i> | | <i>3.6E-04⁽¹⁾</i> | <i>20.4⁽²⁾</i> |
| Future Recreational Child (1-6) | | | |
| Ingestion/Dermal Contact | Surface Soil | 7.0E-05 | 16.7 |
| | Sediment | 2.0E-06 | 0.09 |
| | Surface Water | NC | 0.017 |
| | Wetland Sediment | 7.9E-07 | 0.02 |
| | Wetland Surface Water | 4.4E-08 | 0.02 |
| <i>Future Recreational Child Total</i> | | <i>7.3E-05</i> | <i>16.8⁽²⁾</i> |

NOTES:

(1) Arsenic and dibenz(a,h)anthracene in groundwater were the primary contributors to cancer risk for residential exposures. Other PAHs, hexachlorobenzene, and 1,4-dioxane in groundwater and PCBs, arsenic, dioxins, PAHs, and dieldrin in surface soil contributed to a lesser degree.

(2) PCBs in surface soil were the primary contributors to this non-cancer risk estimate. Arsenic and chromium in groundwater contributed to a lesser degree for residential non-cancer risks.

NC: not calculated.

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

**TABLE 2-8
SUMMARY OF CHEMICALS OF CONCERN USED IN ECOLOGICAL RISK ASSESSMENT - SURFACE SOIL**

| Chemical of Concern | Frequency of Detection | Minimum Concentration | Maximum Concentration | Units | Exposure Point Concentration | Units | Statistical Measure |
|-----------------------------------|------------------------|-----------------------|-----------------------|-------|------------------------------|-------|---------------------|
| <i>Inorganics</i> | | | | | | | |
| Aluminum | 17/17 | 5220 | 16535 | mg/kg | 10299 | mg/kg | 95% UCL |
| Cadmium | 14/15 | 0.04 | 101 | mg/kg | 101 | mg/kg | Max |
| Chromium | 17/17 | 8 | 115 | mg/kg | 76 | mg/kg | 95% UCL |
| Copper | 17/17 | 12 | 557 | mg/kg | 485 | mg/kg | 95% UCL |
| Lead | 17/17 | 25 | 4360 | mg/kg | 2580 | mg/kg | 95% UCL |
| Mercury | 13/17 | 0.10 | 3.00 | mg/kg | 3.00 | mg/kg | Max |
| Nickel | 16/17 | 6.50 | 87.20 | mg/kg | 52.15 | mg/kg | 95% UCL |
| Vanadium | 17/17 | 19 | 155 | mg/kg | 76 | mg/kg | 95% UCL |
| Zinc | 17/17 | 56 | 1810 | mg/kg | 1612 | mg/kg | 95% UCL |
| <i>Pesticides/PCBs</i> | | | | | | | |
| Total PCBs | 13/17 | 75 | 54600 | µg/kg | 54600 | µg/kg | Max |
| <i>Semivolatiles</i> | | | | | | | |
| Total PAH | 17/17 | 1553 | 84990 | µg/kg | 84990 | µg/kg | Max |
| <i>Dioxins</i> | | | | | | | |
| Total 2,3,7,8-TCDD TEF(mammal) | 3/3 | 23.56 | 198.94 | pg/g | 198.94 | pg/g | Max |
| Total 2,3,7,8-TCDD TEF (fish) | 3/3 | 14.91 | 117.56 | pg/g | 117.56 | pg/g | Max |
| Total 2,3,7,8-TCDD TEF(bird) | 3/3 | 18.05 | 132.39 | pg/g | 132.39 | pg/g | Max |

NOTES:

mg/kg - milligram per kilogram

µg/kg - microgram per kilogram

pg/g - picogram per gram

95% UCL —95% upper concentration limit on the arithmetic mean

TEF — toxic equivalency factor

Frequency of Detection displayed as: number of detected values/ total number of samples collected, not including duplicates.

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

TABLE 2-9
SUMMARY OF ECOLOGICAL RISK ASSESSMENT MEASUREMENT AND ASSESSMENT ENDPOINTS –
SURFACE SOIL, HYDRIC SOIL, SEDIMENT, SURFACE WATER, AND BIOTA TISSUE
PAGE 1 OF 4

| Potential Receptor | Sensitive Environment (Yes/No) | Sensitive Species (Yes/No) ^(a) | Exposure Route Evaluated | Assessment Endpoints | Measurement Endpoints | Findings |
|---------------------------------|--------------------------------|-------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Terrestrial Plants | No | No | Direct contact with soil | Sustainability of terrestrial plant community that reflects the available habitat at the WGL and can serve as a forage base for higher trophic level receptors. | <ul style="list-style-type: none"> Comparison of surface soil COPCs concentrations to soil screening benchmarks for plants. Laboratory toxicity testing of plants (lettuce seed toxicity testing) using WGL soils. | No significant potential ecological risk to terrestrial plants due to exposure to WGL soil. |
| Terrestrial Invertebrates | No | No | Direct contact with soil | Sustainability of terrestrial invertebrate that reflects the available habitat at the WGL and can serve as a forage base for higher trophic level receptors. | <ul style="list-style-type: none"> Comparison of surface soil COPCs concentrations to soil screening benchmarks for invertebrates. Laboratory toxicity testing of earthworms using WGL soils. Analysis of earthworm tissue for bioaccumulative COPCs and comparison of earthworm tissue COPC burdens to background concentrations and literature-based effect values (e.g., critical body residues). | Terrestrial invertebrates may potentially be at risk from exposure to COPCs in WGL soil. |
| Terrestrial Vertebrate Wildlife | No | No | Ingestion of soil, surface water, and sediment. Ingestion of prey | Sustainability of terrestrial small mammal and avian populations that reflect the available habitat at the WGL and can serve as a forage base for higher trophic level receptors. | <ul style="list-style-type: none"> Sampling and analysis of surface soils and earthworms from the WGL. Chemical measurements in excess of ingestion thresholds calculated from available toxicological data. Tissue analysis of small mammals from the WGL. Concentrations of bioaccumulative COPCs in small mammals used to help evaluate higher trophic level exposure, as well as evaluate potential risks to small mammals. Field assessment of the small mammal and avian community at selected RI sites and at reference locations. | The majority of HQs for the terrestrial species suggest limited potential for ecological risks. However, potential exposure to cadmium, lead, total PAHs, 2,3,7,8-TCDD TEQ, and total PCBs in surface soils at the WGL resulted in elevated HQs and may warrant further investigation. |

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

TABLE 2-9
SUMMARY OF ECOLOGICAL RISK ASSESSMENT MEASUREMENT AND ASSESSMENT ENDPOINTS –
SURFACE SOIL, HYDRIC SOIL, SEDIMENT, SURFACE WATER, AND BIOTA TISSUE
PAGE 2 OF 4

| Potential Receptor | Sensitive Environment (Yes/No) | Sensitive Species (Yes/No) ^(a) | Exposure Route Evaluated | Assessment Endpoints | Measurement Endpoints | Findings |
|-------------------------------------|--------------------------------|-------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| French Stream Aquatic Invertebrates | No | No | Direct contact with sediment and surface water | Sustainability of healthy and well-balanced benthic invertebrate community in French Stream, typical of comparable Massachusetts streams with similar structure, morphology, and hydrology. | <ul style="list-style-type: none"> • Comparison of bulk sediment analytical chemistry results to sediment quality benchmarks. • Bulk sediment invertebrate toxicity tests. • Comparison of total recoverable and dissolved metals concentrations in surface water to state and EPA acute and chronic water quality criteria for the protection of aquatic life. • Evaluation of simultaneously extracted metals (SEM)/acid volatile sulfides (AVS) relationships to indicate potential bioavailability of divalent cationic metals in sediment. • Field assessment of the benthic macroinvertebrate community adjacent to the WGL site-composition, abundance, and diversity metrics. | Little to no significant potential ecological risk to aquatic invertebrates due to exposure to COPCs in French Stream sediment or surface water adjacent to WGL. |
| French Stream Amphibians | No | No | Direct contact with sediment and surface water | Sustainability of healthy amphibian populations that reflects the available habitat at the WGL and can serve as a forage base for higher trophic level receptors in wetlands adjacent to or at the WGL. | <ul style="list-style-type: none"> • Comparison of sediment COPC concentrations to sediment quality benchmarks and comparison of dissolved metals concentrations to state and federal water quality criteria. • Laboratory toxicity testing of amphibians using site sediments (hydric soils) and a representative amphibian species. • Tissue analysis of amphibians for bioaccumulative COPCs. • Field assessment of the amphibian community at the WGL site and at reference locations. | Little to no significant potential ecological risk to amphibians due to exposure to COPCs in French Stream sediment or surface water adjacent to WGL. |
| French Stream Fish | No | No | Direct contact with sediment and surface water | Sustainability of healthy and well-balanced warm water fish community in French Stream typical of comparable Massachusetts streams with similar structure, morphology, and hydrology. | <ul style="list-style-type: none"> • Comparison of total recoverable and dissolved metals concentrations in surface water to state and EPA acute and chronic water quality criteria for the protection of aquatic life. • Analysis of whole body fish tissue for bioaccumulative COPCs and comparison of fish tissue COPC burdens to background concentrations and literature-based effect values. • Field assessment of the fish community adjacent to the WGL site. | Little to no significant potential ecological risk to fish due to exposure to COPCs in French Stream sediment or surface water adjacent to WGL. |

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

TABLE 2-9
SUMMARY OF ECOLOGICAL RISK ASSESSMENT MEASUREMENT AND ASSESSMENT ENDPOINTS –
SURFACE SOIL, HYDRIC SOIL, SEDIMENT, SURFACE WATER, AND BIOTA TISSUE
PAGE 3 OF 4

| Potential Receptor | Sensitive Environment (Yes/No) | Sensitive Species (Yes/No) ^(a) | Exposure Route Evaluated | Assessment Endpoints | Measurement Endpoints | Findings |
|-----------------------|--------------------------------|-------------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wetland Plants | No | No | Direct contact with hydric soil | Sustainability of wetland plant community that reflects the available habitat at the WGL and can serve as a forage base for higher trophic level receptors. | <ul style="list-style-type: none"> • Comparison of bulk hydric soil analytical chemistry results to sediment quality benchmarks. • Evaluation of simultaneously extracted metals (SEM)/acid volatile sulfides (AVS) relationships to indicate potential bioavailability of divalent cationic metals in wetland hydric soils. • Comparison of WGL hydric soil COPCs concentrations to soil screening benchmarks for plants. | Low significant potential ecological risk to wetland plants due to exposure to WGL wetland hydric soil. |
| Wetland Invertebrates | No | No | Direct contact with hydric soil and surface water | Sustainability of wetland invertebrate community that reflects the available habitat at the WGL and can serve as a forage base for higher trophic level receptors. | <ul style="list-style-type: none"> • Comparison of bulk hydric soil analytical chemistry results to sediment quality benchmarks. • Comparison of total recoverable and dissolved metals concentrations in palustrine wetland surface water to state and EPA acute and chronic water quality criteria for the protection of aquatic life. • Evaluation of simultaneously extracted metals (SEM)/acid volatile sulfides (AVS) relationships to indicate potential bioavailability of divalent cationic metals in wetland hydric soils. • Comparison of WGL hydric soil COPCs concentrations to soil screening benchmarks for invertebrates. | A conclusion of no significant risk could not be reached for exposures to surface water in the wetland. Low significant potential ecological risk to benthic invertebrates due to exposure to WGL wetland hydric soil. |
| Wetland Amphibians | No | No | Direct contact with hydric soil and surface water | Sustainability of healthy amphibian populations that reflects the available habitat at the WGL and can serve as a forage base for higher trophic level receptors in wetlands adjacent to or at the WGL. | <ul style="list-style-type: none"> • Comparison of hydric soil COPC concentrations to sediment quality benchmarks and comparison of dissolved metals concentrations to state and federal water quality criteria. • Laboratory toxicity testing of amphibians using site sediments (hydric soils) and a representative amphibian species. • Tissue analysis of amphibians for bioaccumulative COPCs. • Field assessment of the amphibian community at the WGL site and at reference locations. | A conclusion of no significant risk could not be reached for exposures to surface water in the wetland. Low significant potential ecological risk to amphibians due to exposure to WGL wetland hydric soil. |

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

**TABLE 2-9
SUMMARY OF ECOLOGICAL RISK ASSESSMENT MEASUREMENT AND ASSESSMENT ENDPOINTS –
SURFACE SOIL, HYDRIC SOIL, SEDIMENT, SURFACE WATER, AND BIOTA TISSUE
PAGE 4 OF 4**

| Potential Receptor | Sensitive Environment (Yes/No) | Sensitive Species (Yes/No) ^(a) | Exposure Route Evaluated | Assessment Endpoints | Measurement Endpoints | Findings |
|---------------------------------------------------------------|--------------------------------|-------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wetland Vertebrate Wildlife (Mammals and Birds) | No | No | Direct contact with hydric soil and surface water | Sustainability of wetland small mammal and avian populations that reflects the available habitat at the WGL and can serve as a forage base for higher trophic level receptors. | <ul style="list-style-type: none"> Food chain analysis using conservative assumptions and concentrations of COPCs in biota, sediment, surface water, and hydric soils from the WGL. | The majority of HQs for the wetland wildlife species suggest limited potential for ecological risks associated with surface water or hydric soils in the wetland adjacent to WGL. |
| French Stream Wetland Vertebrate Wildlife (Mammals and Birds) | No | No | Direct contact with sediment and surface water Ingestion of prey | Sustainability of wetland small mammal and avian populations that reflects the available habitat at the WGL and can serve as a forage base for higher trophic level receptors. | <ul style="list-style-type: none"> Food chain analysis using conservative assumptions and concentrations of COPCs in biota, sediment, surface water, and hydric soils from the WGL. | Little to no significant potential ecological risk to wetlands vertebrate wildlife due to exposure to COPCs in French Stream sediment or surface water adjacent to WGL. However, potential exposure to COPCs in surface soils at the WGL resulted in elevated HQs. |

SOURCE: Data from the RI (Tetra Tech NUS, 2002).

NOTES:

(a) One state-listed threatened species, the Northern Harrier, occurs at and in the vicinity of the site; however, it is unlikely that they would use the terrestrial upland in and around the site for nesting. Further, it is not anticipated that this site will pose unacceptable ecological risk to this species. Future site activities, however, should adhere to state-mandated avoidance, protection, and mitigation measures based on the potential presence of this species. One state-listed "species of special concern," the eastern box turtle, is known to be present at the Naval Air Station South Weymouth; however, despite extensive surveys, this species has not been located at or in the vicinity of the WGL.

WGL = West Gate Landfill.

COPC = Chemical of Potential Concern.

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

**TABLE 2-10
SUMMARY OF REMEDIAL ALTERNATIVES AND THEIR MAJOR COMPONENTS**

| | WGL-1 | WGL-2 | WGL-3 | WGL-4 | WGL-5 | WGL-6 |
|------------------------------------------------------|----------------|-------|-------|-------|----------------|-----------------------|
| Remedy Components | | | | | | |
| • Clearing, grubbing, grading | | X | X | X | X | X |
| • Wetland Restoration | | X | X | X | X | X |
| • Institutional Controls (on land and aquifer use) | | X | X | X | ^(d) | X ^{(b), (d)} |
| • Physical Controls (fencing and signage) | | X | X | X | | X ^(b) |
| • 5-Year Reviews | ^(c) | X | X | X | | X ^(b) |
| • Post Closure Monitoring/Maintenance | | | X | X | | X ^(b) |
| • In-place Capping of Landfill Material | | | X | X | | |
| • Onsite Relocation and Capping of Landfill Material | | | | | | X |
| Estimated Timeframes (years) | | | | | | |
| • Designing and Constructing the alternative | NA | <1 | 1 | 1-2 | 2 | 4 |
| • Achieving the cleanup objectives | NA | NA | <1 | 1-2 | 2 | 4 |
| Costs (\$) ^(a) | | | | | | |
| • Capital Costs | 0 | 1M | 1.8M | 2.0M | 33.6M | 31M |
| • O&M Costs | 0 | 0 | 0.9M | 0.9M | 0 | 6.1M |
| • Periodic Costs | 77K | 0.2M | 0.2M | 0.2M | 0 | 0 |
| • Present Worth Costs | 77K | 1.2M | 2.9M | 3.1M | 33.6M | 37.1M |

NOTES:

^(a) FS cost estimates have been updated to reflect a 2005 cost basis.

^(b) Included as a component for the new landfill.

^(c) One 5-year review included in costing for this alternative.

^(d) Includes an institutional control to prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to humans.

WGL-1: No Action

WGL-2: Limited Action

WGL-3: Construct a Soil Cap over the Site

WGL-4: Construct a Flexible Membrane Liner (FML) Cover Over the Site

WGL-5: Remove and Dispose of all WGL Materials Off-Site

WGL-6: Remove WGL Materials and Dispose of at Newly-Constructed Landfill On-Site

K — Thousand

M — Million

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

TABLE 2-11
DETAILED COMPARISON OF REMEDIAL ALTERNATIVES

| Comparative Criteria | WGL-1 | WGL-2 | WGL-3 | WGL-4 | WGL-5 | WGL-6 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|------------------|
| Detailed Description | | | | | | |
| Includes clearing, grubbing, and grading and wetland restoration | | x | x | x | x | x |
| Includes physical/institutional controls (i.e., fencing and signage; deed restriction) | | x | x | x | | x ^(b) |
| Includes post-closure monitoring/maintenance | | | x | x | | x ^(b) |
| Includes 5-year reviews | (c) | x | x | x | | X ^(b) |
| Does not generate wastes that require subsequent management/disposal | X | x | x | x | | |
| Does not require specialized expertise of workers to implement | X | x | x | | | |
| Does not require significant design planning, and implementation logistics | X | x | x | | | |
| Estimated Timeframes (years) | | | | | | |
| Designing and Constructing the Alternative | NA | <1 | 1 | 1-2 | 2 | 4 |
| Achieving the RAOs | NA | NA | <1 | 1-2 | 2 | 4 |
| Criteria Analysis | | | | | | |
| Achieves RAOs: | | | | | | |
| <ul style="list-style-type: none"> • Prevents or reduces human exposure to groundwater containing contaminant concentrations in excess of Federal or more stringent state drinking water standards or posing an unacceptable risk to human health. | | x | x | x | x | X |
| <ul style="list-style-type: none"> • Eliminates or minimizes human and ecological exposure to the surface of the landfill | | | x | x | x | X |
| <ul style="list-style-type: none"> • Removes visible landfill material from the palustrine wetlands adjacent to the WGL, and restore the wetlands impacted by the removal | | x | x | x | x | X |
| <ul style="list-style-type: none"> • If capping is being considered, complies with Massachusetts solid waste landfill closure requirements and presumptive remedy guidance | | | x | x | (x) | X |
| Achieves overall protection of human health and the environment: | | | | | | |
| <ul style="list-style-type: none"> • Eliminates, reduces and/or controls risks | | x | x | x | x | X |
| <ul style="list-style-type: none"> • Minimal potential for short-term, and cross-media impacts | X | x | x | x | | |
| Achieves ARARs | | | x | x | (x) | X |
| Achieves TBCs | | | x | x | x | X |
| Achieves long-term effectiveness | | x | x | x | x | X |
| Reduces the toxicity, mobility and volume of waste through treatment | NA | NA | NA | NA | NA | NA |
| Achieves short-term effectiveness | | x | x | x | | |
| Easily implemented | X | x | x | | | |
| Cost(s)^(a) | | | | | | |
| <ul style="list-style-type: none"> • Capital | 0 | 1M | 1.8M | 2.0M | 33.6M | 31M |
| <ul style="list-style-type: none"> • Operation and Maintenance | 0 | 0 | 0.9M | 0.9M | 0 | 6.1M |
| <ul style="list-style-type: none"> • Periodic Costs | 77K | 0.2M | 0.2M | 0.2M | 0 | 0 |
| Total Cost | 77K | 1.2M | 2.9M | 3.1M | 33.6M | 37.1M |
| Additional Regulatory Considerations | | | | | | |
| Achieves Intent of <i>Presumptive Remedy for CERCLA Municipal Landfill Sites</i> | | | x | x | | |
| Would comply with TSCA cover requirements presented in the <i>PCB Megarule</i> | | | x | x | x | X |
| Provides notification of groundwater conditions to potential users in the form of an institutional control | | x | x | x | x | X |

NOTES:

^(a) FS cost estimates updated to reflect a 2005 cost basis.

^(b) Included as a component for the new landfill.

^(c) One 5-year review included in costing for this alternative.

WGL-1 — No Action

WGL-2 — Limited Action

WGL-3 — Construct a Soil Cap over the Site

WGL-4 — Construct a Flexible Membrane Liner (FML) Cover

WGL-5 — Remove and Dispose of all WGL Materials Off-Site

WGL-6 — Remove WGL Materials and Dispose of at a Newly Constructed Landfill On-Site

x — Includes component or achieves criterion (positive attribute)

(x) — Not applicable or Inherently achieved

NA - Not applicable

K — thousand

M — million

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

**TABLE 2-12
ESTIMATED COSTS ASSOCIATED WITH THE SELECTED REMEDY AS PRESENTED IN THE FS
PAGE 1 OF 2**

| Description | QTY | Unit | Unit Cost ^(a) | Total | Notes |
|----------------------------------------------------------------------------------------------------|---------|----------|--------------------------|---------------------|----------------|
| CAPITAL COSTS | | | | | |
| Site Preparation | | | | | |
| Mobilization and Demobilization | 1 | Each | \$ 20,000 | \$ 20,000 | Contractor |
| Clearing and Grubbing (5.23 acres from WGL plus an estimated 1.61 acres from the adjacent wetland) | 6.84 | Acre | \$ 3,000 | \$ 20,520 | Means |
| Site Survey | 2 | LS | \$ 2,000 | \$ 4,000 | ENSR |
| SUBTOTAL | | | | \$ 44,520 | |
| Excavation along wetland border | | | | | |
| Excavation of wetland material | 10,000 | CY | \$ 6 | \$ 60,000 | Foster Wheeler |
| Cap Construction | | | | | |
| Vegetation of impacted adjacent wetland area (includes permitting, engineering, & construction) | 45,000 | SF | \$ 2.85 | \$ 128,250 | ENSR |
| Soil cap (18" thick) for WGL Offsite Source includes: material, hauling | 12,667 | CY | \$ 18 | \$ 228,000 | Contractor |
| Spreading with low pressure equipment | 12,667 | CY | \$ 6 | \$ 76,000 | Foster Wheeler |
| Odor and Dust Control | 1 | LS | \$ 40,000 | \$ 40,000 | Foster Wheeler |
| Vegetative Layer for WGL (8" thick loam, hauling and spreading material) | 5,630 | CY | \$ 20 | \$ 112,593 | Contractor |
| Revegetation (hydroseed) of WGL | 228,000 | SF | \$ 0.15 | \$ 34,200 | Contractor |
| Cap construction oversight, QA/QC (5% of soil cost) & CQA Report | 1 | Each | NA | \$ 11,400 | ENSR |
| Fencing (silt) of WGL and adjacent wetland | 1,852 | LF | \$ 3.50 | \$ 6,482 | ENSR |
| Fencing around the perimeter (8' high chain link) of WGL and adjacent wetland | 1,852 | LF | \$ 28 | \$ 51,856 | Means |
| Signs (every 200 feet) | 9 | one/200' | \$ 50 | \$ 450 | Means |
| Deed Restriction | 1 | Each | \$ 4,150 | \$ 4,150 | ENSR |
| Drainage Improvements | 1 | LA | \$ 10,000 | \$ 10,000 | ENSR |
| Fertilization/Lime | 228 | MSF | \$ 3 | \$ 684 | ENSR |
| Reseeding (assume 10% of cover will require reseeding) | 22,800 | SF | \$ 0.15 | \$ 3,420 | ENSR |
| SUBTOTAL | | | | \$ 707,485 | |
| CUMULATIVE SUBTOTAL | | | | \$ 812,005 | |
| Contingency | 20% | | | \$ 162,401 | ENSR |
| CUMULATIVE SUBTOTAL | | | | \$ 974,406 | |
| Project Management and Design | | | | | |
| Project Management | 6% | | | \$ 58,464 | EPA |
| Remedial Design | 12% | | | \$ 116,929 | EPA |
| Construction Management | 8% | | | \$ 77,952 | EPA |
| SUBTOTAL | | | | \$ 253,345 | |
| TOTAL CAPITAL COSTS | | | | \$ 1,227,751 | |

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

**TABLE 2-12
ESTIMATED COSTS ASSOCIATED WITH THE SELECTED REMEDY AS PRESENTED IN THE FS
PAGE 2 OF 2**

| Description | QTY | Unit | Unit Cost | Total | Notes |
|------------------------------------------------------------------------------------------------------------|-----|-------------|-----------|---------------------|-------|
| ANNUAL OPERATION AND MAINTENANCE COSTS | | | | | |
| Site Monitoring/Maintenance | | | | | |
| Mowing/High Density – annual | 1 | LS per year | \$ 3,000 | \$ 3,000 | ENSR |
| Groundwater Monitoring – varies annually | 1 | Each round | \$ 10,000 | NA | ENSR |
| Annual Inspection (one day per year) | 8 | Hour | \$ 125 | \$ 1,000 | ENSR |
| Maintenance (including stormwater management structure maintenance) - annual | 1 | LS per year | \$ 5,000 | \$ 5,000 | ENSR |
| SUBTOTAL (fixed annual costs) | | | | \$ 9,000 | |
| Annual O&M Costs (years 1-2 – includes quarterly groundwater sampling & annual maintenance listed above) | | | | \$ 49,000 | ENSR |
| Annual O&M Costs (years 3-5 – includes semi-annual groundwater sampling & annual maintenance listed above) | | | | \$ 29,000 | ENSR |
| Annual O&M Costs (years 6-30 – includes annual groundwater sampling & annual maintenance listed above) | | | | \$ 19,000 | ENSR |
| Calculated 30 Year O&M Net Present Value | | | | \$ 410,789 | ENSR |
| CONTINGENCY | 30% | | | \$ 123,237 | |
| PROJECT MANAGEMENT AND DESIGN | | | | | |
| Project Management | 5% | | | \$ 20,539 | EPA |
| Technical Support | 10% | | | \$ 41,079 | ENSR |
| SUBTOTAL | | | | \$ 61,618 | |
| Total 30 Year O&M Net Present Value | | | | \$ 595,644 | |
| PERIODIC COSTS | | | | | |
| Five-Year Reviews | | Event | \$ 50,000 | \$ 50,000 | ENSR |
| Calculated 30 Year Periodic Cost Net Present Value | | | | \$ 159,629 | |
| TOTAL COST (CAPITAL COST, PLUS O&M AND PERIODIC COSTS) | | | | \$ 1,983,024 | |

NOTES:

^(a)All costs from FS, Appendix C, Table 3; net present value reflects a 2001 cost basis.

LS = lump sum

CY = cubic yards

SF = square feet

LF = linear feet

MSF = thousand square feet

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

**TABLE 2-13
GROUNDWATER REMEDIAL GOALS**

| Carcinogenic Chemical of Concern | Cancer classification | Remedial Goal⁽¹⁾ (µg/l) | Basis | RME Risk (from RI risk assessment)⁽²⁾ | Post Remedial Risk⁽³⁾ |
|---------------------------------------------|----------------------------------------------------------------|-------------------------------------------|--------------|---------------------------------------------------------|-----------------------------------------|
| 1,4-Dioxane | B2, Probable human carcinogen | 6 | Cancer risk | 2.4 x 10 ⁻⁶ | 9.8 x 10 ⁻⁷ |
| Arsenic | A, Human carcinogen | 10 | MCL | 1.0 x 10 ⁻⁴ | 2.2 x 10 ⁻⁴ |
| Benzo(a)anthracene | B2, Probable human carcinogen | 0.09 | Cancer risk | 1.1 x 10 ⁻⁵ | 9.8 x 10 ⁻⁷ |
| Benzo(b)fluoranthene | B2, Probable human carcinogen | 0.09 | Cancer risk | 9.8 x 10 ⁻⁶ | 9.8 x 10 ⁻⁷ |
| Dibenzo(a,h)anthracene | B2, Probable human carcinogen | 0.009 | Cancer risk | 1.1 x 10 ⁻⁴ | 9.8 x 10 ⁻⁷ |
| Hexachlorobenzene | B2, Probable human carcinogen | 1 | MCL | 7.1 x 10 ⁻⁶ | 2.4 x 10 ⁻⁵ |
| Indeno(1,2,3-cd)pyrene | B2, Probable human carcinogen | 0.09 | Cancer risk | 2.2 x 10 ⁻⁶ | 9.8 x 10 ⁻⁷ |
| Chromium | A, Human carcinogen | 47 | Cancer risk | NA | NA |
| Sum of Carcinogenic risks | | | | 2.2 x 10 ⁻⁴ | 2.5 x 10 ⁻⁴ |
| Non-carcinogenic Chemical of Concern | Target Endpoint | Remedial Goal⁽¹⁾ (µg/l) | Basis | RME Hazard Quotient (from RI risk assessment) | Post Remedial Hazard Quotient |
| 1,4-Dioxane | NA | 6 | Cancer risk | NA | NA |
| Arsenic | Hyperpigmentation, keratosis & possible vascular complications | 10 | MCL | 0.98 | 0.18 |
| Benzo(a)anthracene | Kidney effects | 0.09 | Cancer risk | 0.0021 | 0.000016 |
| Benzo(b)fluoranthene | Kidney effects | 0.09 | Cancer risk | 0.0019 | 0.000016 |
| Dibenzo(a,h)anthracene | Kidney effects | 0.009 | Cancer risk | 0.0021 | 0.0000016 |
| Hexachlorobenzene | Liver effects | 1 | MCL | 0.024 | 0.0065 |
| Indeno(1,2,3-cd)pyrene | Kidney effects | 0.09 | Cancer risk | 0.00043 | 0.000016 |
| Chromium | No Adverse Affects | 47 | Cancer risk | 1.5 | 0.086 |
| Sum of Non-carcinogenic risks | | | | 2.5 | 0.275 |

NOTES:

- (1): If a value described by any of the above methods is not capable of being detected with good precision and accuracy or is below what was deemed to be the background value, then the practical quantitation limit of background value will be used as appropriate.
- (2): The "RME Risk" represents site risks from residential exposures to calculated Exposure Point concentrations (EPCs), which are generally based on 95% UCLs.
- (3): "Post Remedial Risk" represents risk from residential exposures to the Remedial Goal concentrations. These risks were calculated using the exposure assumptions and toxicity factors from the WGL Phase II RI (TiNUS, 2002) with the exception of dermal absorption factors and GI absorption factors (used to determine adjusted dermal toxicity factors), which were obtained from EPA RAGS Part E, Dermal Guidance, 2004. Because Remedial Goals for arsenic and hexachlorobenzene are based on MCLs, which are not exclusively risk-based and the MCLs for these compounds are higher than the EPCs used in the RI RME risk calculations, calculated cancer risks based on the remedial goals are higher than those based on site EPCs. Actual post-remedial risks would be lower, since maximum detected concentrations of both arsenic and hexachlorobenzene were less than their MCLs.

NA: Not applicable

Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary

TABLE 2-14
SURFACE SOIL REMEDIAL GOALS

| Carcinogenic Chemical of Concern | Cancer classification | Remedial Goal⁽¹⁾ (mg/kg) | Basis | RME Risk (from RI risk assessment)⁽²⁾ | Post Remedial Risk⁽³⁾ |
|---------------------------------------------|-----------------------------------------------------------------|--------------------------------------------|--------------|---------------------------------------------------------|-----------------------------------------|
| Polychlorinated biphenyls | B2, Probable human carcinogen | 0.67 | Cancer risk | 8.2 x 10 ⁻⁵ | 7.5 x 10 ⁻⁷ |
| Benzo(a)pyrene | B2, Probable human carcinogen | 0.47 | Cancer risk | 7.2 x 10 ⁻⁶ | 2.8 x 10 ⁻⁶ |
| Benzo(a)anthracene | B2, Probable human carcinogen | 4.73 | Cancer risk | 1.6 x 10 ⁻⁶ | 2.8 x 10 ⁻⁶ |
| Arsenic | A, Human carcinogen | 1.04 | Cancer risk | 9.7 x 10 ⁻⁶ | 1.2 x 10 ⁻⁶ |
| Dibenzo(a,h)anthracene | B2, Probable human carcinogen | 0.47 | Cancer risk | 1.6 x 10 ⁻⁶ | 2.8 x 10 ⁻⁶ |
| Dieldrin | B2, Probable human carcinogen | 0.08 | Cancer risk | 2.8 x 10 ⁻⁶ | 8.6 x 10 ⁻⁷ |
| Dioxin | B2, Probable human carcinogen | 1.45 x 10 ⁻⁵ | Cancer risk | 8.8 x 10 ⁻⁶ | 8.9 x 10 ⁻⁷ |
| Lead | B2, Probable human carcinogen | 350 | IEUBK | NA | NA |
| Sum of Carcinogenic risks | | | | 1.1 x 10 ⁻⁴ | 1.2 x 10 ⁻⁵ |
| Non-carcinogenic Chemical of Concern | Target Endpoint | Remedial Goal⁽¹⁾ (mg/kg) | Basis | RME Hazard Quotient (from RI risk assessment) | Post Remedial Hazard Quotient |
| Polychlorinated biphenyls | Reduced birth weights | 0.67 | Cancer risk | 15.5 | 0.029 |
| Benzo(a)pyrene | Kidney effects | 0.47 | Cancer risk | 0.0005 | 0.000083 |
| Benzo(a)anthracene | Kidney effects | 4.73 | Cancer risk | 0.001 | 0.00083 |
| Arsenic | Hyperpigmentation, keratosis, & possible vascular complications | 1.04 | Cancer risk | 0.17 | 0.021 |
| Dibenzo(a,h)anthracene | Kidney effects | 0.47 | Cancer risk | 0.00011 | 0.000083 |
| Dieldrin | Liver lesions | 0.08 | Cancer risk | 0.028 | 0.0088 |
| Dioxin | NA | 1.45 x 10 ⁻⁵ | Cancer risk | NA | NA |
| Lead | CNS | 350 | IEUBK | NA | NA |
| Sum of Non-carcinogenic risks | | | | 17.8 | 0.32 |

NOTES:

- (1): If a value described by any of the above methods is not capable of being detected with good precision and accuracy or is below what was deemed to be the background value, then the practical quantitation limit of background value will be used as appropriate.
- (2): The "RME Risk" represents site risks from residential exposures to calculated Exposure Point concentrations (EPCs), which are generally based on 95% UCLs.
- (3): "Post Remedial Risk" represents risk from residential exposures to the Remedial Goal concentrations. These risks were calculated using the exposure assumptions and toxicity factors from the WGL Phase II RI (TiNUS, 2002) with the exception of dermal absorption factors and GI absorption factors (used to determine adjusted dermal toxicity factors), which were obtained from EPA RAGS Part E, Dermal Guidance, 2004.

NA: Not applicable

IEUBK: Integrated Exposure Uptake Biokinetic Model

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**

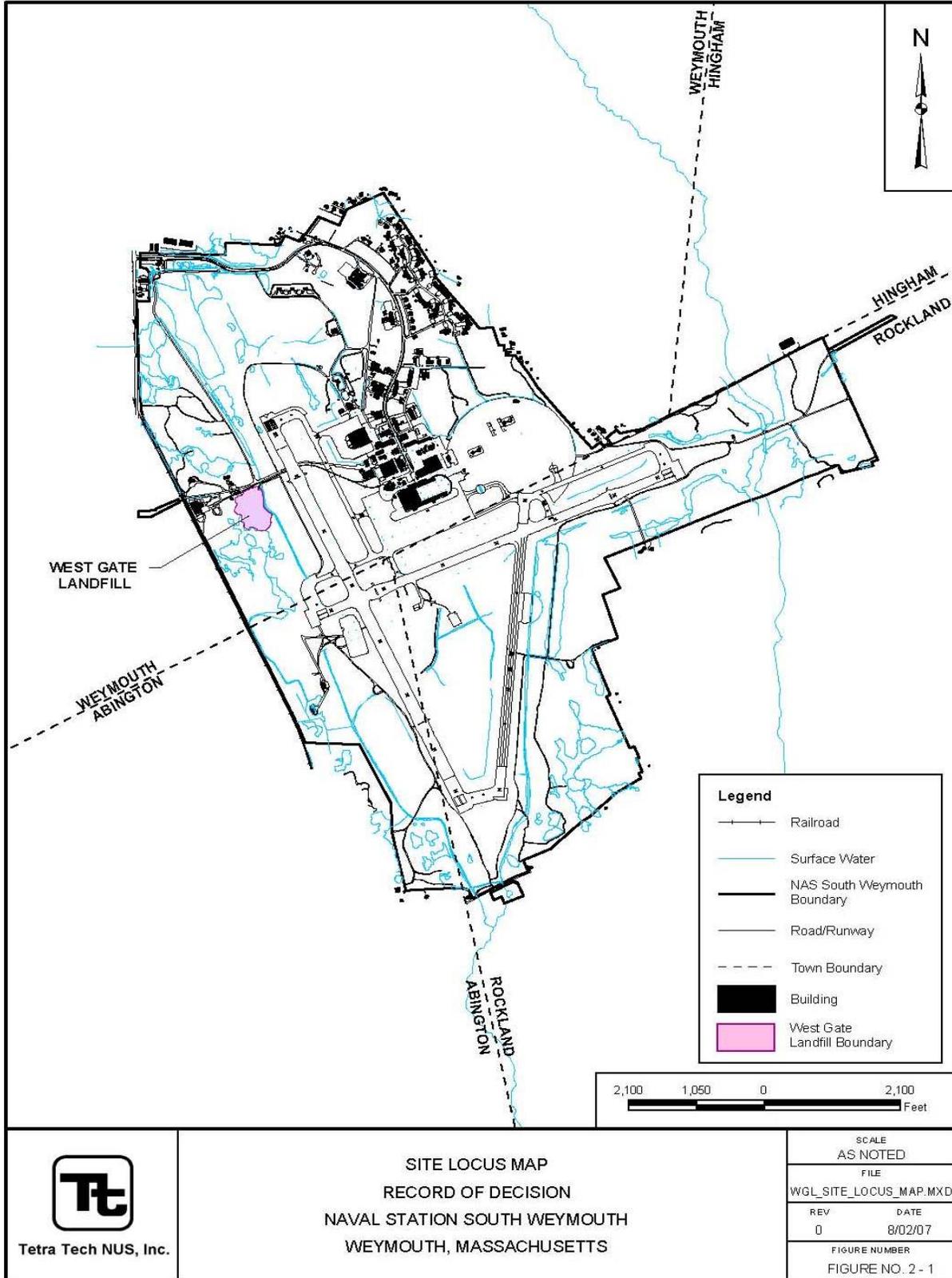
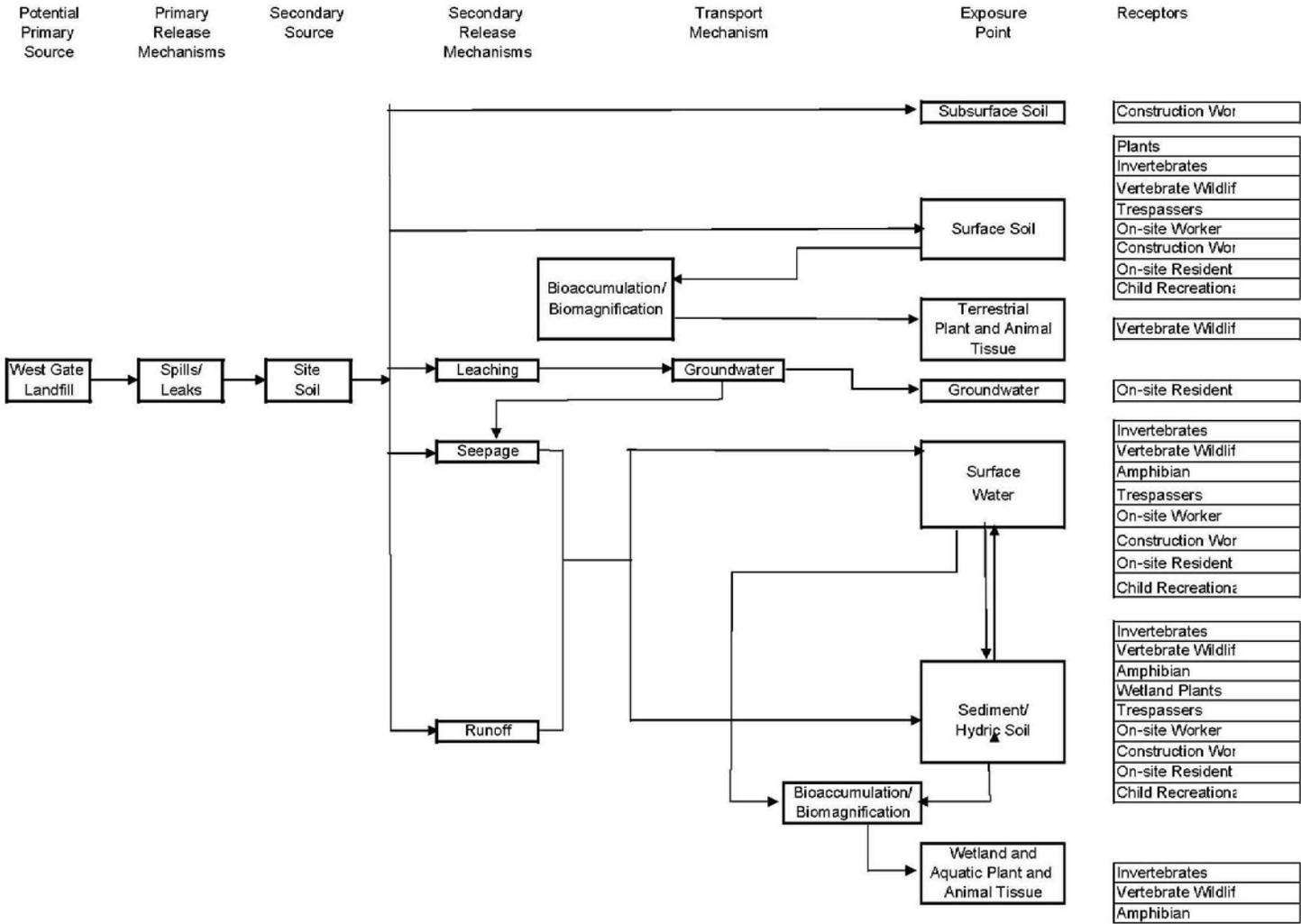
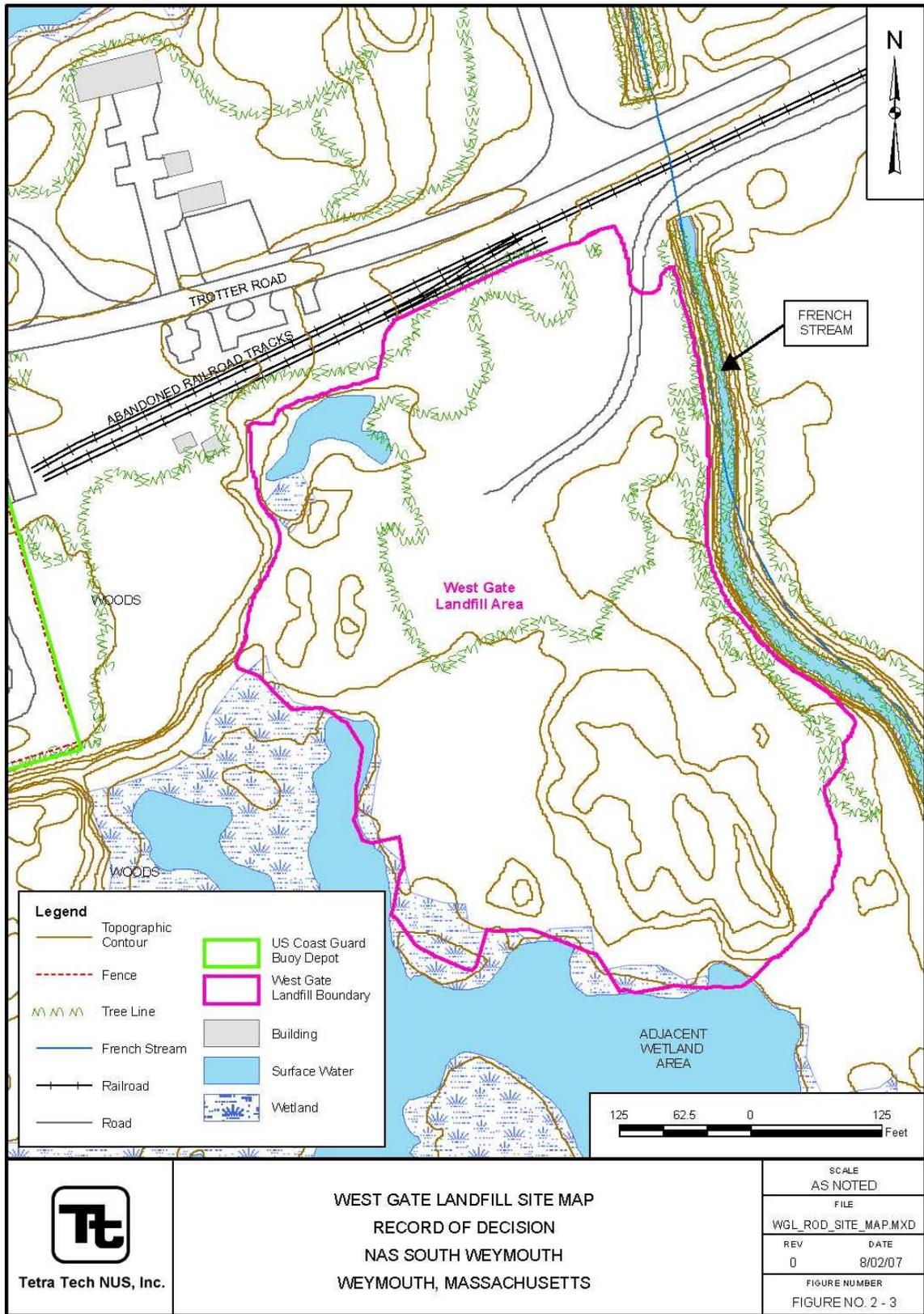


FIGURE 2-2
 CONCEPTUAL SITE MODEL
 WEST GATE LANDFILL
 NAVAL AIR STATION, SOUTH WEYMOUTH, MASSACHUSETTS



Notes:
 x = Potential Exposure Pathway Evaluated in Tier II ERA
 o = Potential Exposure Pathway not evaluated in the Tier II ERA
 hh = Potential Exposure Pathway Evaluated in HHRA

**Record of Decision
Naval Air Station South Weymouth
Part 2: The Decision Summary**



**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

PART 3: RESPONSIVENESS SUMMARY

I. STAKEHOLDER ISSUES AND NAVY RESPONSES

A number of comments were received during the public comment period and at the public hearing on the Proposed Plan for the West Gate Landfill (WGL), Operable Unit 1. The 30-day comment period for the RDA was from May 21, 2007 to June 20, 2007, however, based upon verbal and written requests, the Navy granted a 15-day comment period extension. Therefore, the 45-day comment period ended on July 6, 2007. The public hearing was held on June 19, 2007. A copy of the comments received during the public comment period and a copy of the transcript for the public hearing are attached as Appendix E1 and Appendix E2, respectively. Comment responses are provided in Section III.

II. TECHNICAL AND LEGAL ISSUES

The Navy has reviewed all comments received from the public and support agencies regarding the Proposed Plan for the WGL at NAS South Weymouth. Navy understands the stakeholders' primary concerns to be a preference to excavate and remove the landfill materials, a perceived inconsistency between Navy's preferred alternative and the reuse plan, possible impacts to French Stream and nearby wetlands, and the use of groundwater in the reuse plan.

The concerns expressed in the written and verbal comments have been carefully considered, particularly the four concerns mentioned above. Navy's detailed responses in Section III below address these concerns and describe the CERCLA process, which has resulted in the selection of the Navy's preferred remedy consisting of construction of a soil cover over the landfill, long-term monitoring program, and institutional controls. Navy's preferred alternative is consistent with CERCLA and is supported by EPA. This alternative achieves Navy's risk management goals and is the lowest cost alternative that will be protective of human health and the environment. In addition, capping is an accepted presumptive remedy for landfills. Future reuse of the site is a factor to be considered, but does not directly dictate the selection of a remedy. As stated in the Proposed Plan, it will be incumbent upon the Local Redevelopment Authority to take the environmental condition of the property, planned remedial activities, and resource constraints into consideration when developing and implementing the reuse plan.

Long-term groundwater monitoring will be conducted, as required by state landfill closure regulations, to assess whether chemicals are leaching from the capped landfill and impacting French Stream and the nearby wetlands. This post-closure monitoring data will be used to assess the adequacy, reliability and long-term effectiveness of the remedy. Navy's preferred alternative, WGL-3, will include an institutional control to prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to humans. As noted in the Proposed Plan, the Navy will ensure consistency between the land use controls required under the preferred remedy and the proposed reuse plan by imposing deed covenants on the WGL site that will run with the land and pass to the recipient of the property and subsequent owners. Such covenants ensure that land use controls are in place and are legally enforceable upon any recipient.

Navy does not believe that any of the comments necessitate a change from the preferred alternative. Therefore Navy and EPA believe that there is sufficient technical basis to proceed with the preferred alternative, WGL-3: construction of a soil cover over the landfill, long-term monitoring program, and institutional controls.

III. COMMENT RESPONSES

The following sections present written comments received during the public comment period and verbal comments received at the public hearing, with Navy responses.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

A. Written Comments and Responses

This section presents the written comments received during the public comment period (May 21, 2007 to July 6, 2007) and the Navy's responses to those comments. Please note that comments were received from the Massachusetts Highway Department after the close of the public comment period. Navy considers the comments to be critical to the community acceptance NCP evaluation criteria and, as such, Navy is responding to these comments. Refer to the attached comment package in Appendix E.1 for a copy of the written comments received during the public comment period.

1. Comment from Terry Fancher, Executive Director, South Shore Tri-Town Development Corporation. The South Shore Tri-Town Development Corporation takes this opportunity to reiterate and underscore its constant position regarding the remedial program for the former South Weymouth Naval Air Station. In particular, the Corporation maintains that excavation and off-site removal of the West Gate landfill be performed in order to meet the requirements of the Master Plan as approved by the communities of Abington, Rockland and Weymouth for the redevelopment of the site.

In line with the approved Master Plan, the first phase of the development project is underway and application has been made seeking transfer of the remaining parcels of the site from the U.S. Navy. The Economic Development Conveyance Application made to the U.S. Navy, by the Corporation, reiterates the position to remove the Westgate Landfill and provides funding to do so.

Navy Response: As discussed in Comment # 2 below, the Navy's preferred alternative is consistent with CERCLA and is supported by EPA. The foremost consideration in Navy's remedy selection process is risk management, consistent with CERCLA and the National Contingency Plan (NCP), which includes response actions that "...eliminate, reduce, or control risks to human health and the environment." (40 CFR 300.430(a)(1)). The WGL Feasibility Study considered a range of viable alternatives that achieve these risk management goals and are protective of human health and the environment. In addition, capping is an accepted presumptive remedy for landfills. Future reuse of the site is a factor to be considered, but does not directly dictate the selection of a remedy.

Navy has informed SSTITDC that Navy will not entertain SSTITDC doing environmental work at South Weymouth, including work on West Gate Landfill, as part of their ongoing EDC negotiations. Both parties are actively working on these negotiations but no time to complete negotiations can be predicted. Capping of the West Gate Landfill should therefore proceed to avoid unnecessarily delaying the remedial action.

2. Comment from David M. Madden, Mayor, Town of Weymouth. After review of the Proposed Plan for the West Gate Landfill (Operable Unit 1), and with the understanding that the Navy has selected alternative WGL-3 as their preferred alternative, I offer the following comments:

- Capping of municipal landfills is common practice; however the location of this particular landfill is crucial in the future development of the former Air Base. I have consistently advocated that the clean up of the West Gate Landfill be consistent with the Reuse Plan approved by Weymouth, Rockland and Abington. Currently the reuse plan shows a roadway on part of the site. WGL-3 includes restrictions on construction on top of the finished cover. Capping should only be selected if it is determined during your Pre-Design Investigation (PDI) that the site will support a road way (structurally and in compliance with all state and federal regulations).
- With alternative WGL-3, institutional controls and monitoring of the surface and groundwater at the site will need to be conducted indefinitely. The Navy must be responsible for these items; the communities should not at any time bear the burden.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

- Future monitoring of the contaminants (PCBs, PAHs, dioxins, and metals) left under the cap must be conducted within a timeline that will ensure detection prior to any health or environmental risk.

Should the cap fail, the Navy must be responsible for returning and making timely repairs.

Fencing or signage should not be a part of the plan. The cap should be engineered and constructed to withstand future use.

Navy Response: As an NPL site, Navy's cleanups at NAS South Weymouth must be consistent with CERCLA. Navy's preferred alternative for WGL is consistent with CERCLA; EPA concurs with this alternative, but is also supportive of excavation and removal of landfill materials. As noted in the Proposed Plan: "It will be incumbent upon the Local Redevelopment Authority to take the environmental condition of the property, planned remedial activities, and resource constraints into consideration when developing and implementing the reuse plan." The location of the landfill, which has been inactive since 1972, was well known prior to the 2005 changes to the reuse plan.

Navy is responsible for the institutional controls and long term monitoring program that will be developed during the remedial design process. The details of the monitoring program will be developed with input from EPA and MADEP. Operation and maintenance, including inspections of the cap, will be performed by Navy or it's contractors, and any needed repairs made.

Navy concurs that it is reasonable to design engineering controls to ensure protectiveness and to minimize reliance on controls such as signs. To the extent feasible and practical, the landfill design and associated engineering controls would include features to accommodate reasonable future land use(s).

3. Comments from Dominic Galluzzo, Weymouth Resident. The Westgate Landfill area has been designated as a Superfund site for a reason. Given that the proposed re-use plan by LNR, supported by South Shore Town Development Corp. or any other names they have each designated themselves since 2003, is inconsistent with their previous capping positions regarding all other superfund sites on the former NAS. The re-use plan is a residential build out, the largest component of developed land is the dense housing (2855 homes).

In the case of the WGL, located in the center of the proponents village center SSTTDC has recited a position that clearly is self serving. It is very apparent that a capped, fenced and posted WGL located in the center of their Village would pose a public relations nightmare in the marketing of the proposed non sustainable re-use plan.

The concern is high lighted by the attached Conditional Approval given by the Solid Waste Division of the DEP of MA in February 2007, and the extension of the same given in June of 2007. I have been unable to attain any on site supervisory documentation or test results of the sampled runway materials to indicate that the extension of the approval is appropriate. Who is watching the execution of the Conditional Approval? Attempts to gain that information include conversations and or emails with Messrs, David Ellis and Robert Johnson Southeast Regional Office Solid Waste Div. of MA DEP., Ms. Anne Malewicz, MA DEP, Mr. Rich Kleiman, Legal Council to LNR, Mr. Brian Olson, and Ms. Pam Harting-Barrett of MA EPA.

I thank the Navy for a very deliberate effort to insure the safety of all elements pertaining to this large 1400 acre foot print, its environment, our water shed, our public health and the scrutiny of your mission; to ensure a sustainable plan. In the best interest of the Host Communities, the Region, and the Nation a wind energy component should be studied by the Navy, who better qualified to determine the presence of wind that would sustain an industrial wind farm? To date the SSTTDC has spun a position that there is no wind on the former base, when asked by the Town Council of Weymouth, (letter sent in early 2006) to erect an anemometer to collect a year long wind velocity record, SSTTDC flatly refused. Since then many adjoining south shore towns are applying for and considering the installation of wind turbines. The

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

SSTTDC "no wind" position is too convoluted not to be re-examined by an impartial and qualified Navy whose historical past and present technical expertise would end the deception raised by the SSTTDC position on the wind issue, by insisting that a 100 turbine wind farm be an element of a re-use plan that could be considered a model of a sustainable plan repeated the length of the east coast.

Navy Response: As has been mentioned by MADEP representatives at Restoration Advisory Board meetings, the MADEP Solid Waste Division is providing oversight of the developer's activities with respect to runway and taxiway deconstruction and reuse. Navy is responsible for cleanup of the base and transferring the base property to the local redevelopment authority, SSTTDC. Navy does not have a role in the redevelopment process; nor is Navy involved in selection of the components of the reuse plan or its implementation.

4. Comment from James F. Simpson, Selectman of Rockland. I'm writing to voice my personnel opinion concerning the clean up at the West Gate Landfill at the Naval Air Station - South Weymouth, Massachusetts.

The following is my concerns:

1. I vote for the Alternative WGL-5 plan and would prefer that the Navy manage the site clean up if they do not perform the work themselves.
2. I'm concerned with other waste management sites also on the property and need assurance that they will be fixed in the best format for our residents.
3. I'm concerned with the present state of VOC coming into Rockland via French's Stream?
4. What was the VOC during the active life of the waste area? What are the long term effects?
5. I'm concerned if cancer or other problems occur a higher percentage in Rockland than other areas
6. If other methods are used to cap the waste area concerns about the potential seepage into French's Stream of active VOC's.

Navy Response: The Navy has conducted several investigations to determine the nature and extent of potential contamination, and to adequately characterize the physical and ecological settings of the WGL. These investigations were done in accordance with CERCLA, the NCP, and the MCP. The EPA and MADEP have been involved in each step of the evaluation process. Further, the Navy has identified 11 CERCLA sites, approximately 30 MCP sites, and over 100 EBS sites at NAS South Weymouth that are either currently being investigated, in the process of being remediated or have been closed in accordance with applicable state and federal regulations. Navy is responsible for, and committed to, the cleanup of all sites on the base and transfer of the property to the local redevelopment authority.

Based on the results of the WGL remedial investigation, VOCs were not identified as contaminants of potential concern for any media. Therefore, VOCs do not contribute to the risks determined for WGL.

Public health and epidemiological studies are the responsibility of the Massachusetts Department of Public Health (MDPH). A study to determine the prevalence of MS/ALS in southeastern Massachusetts will be issued following completion of the peer review process. This study was funded by MDPH and ATSDR.

Based on available groundwater and surface water data, potential contaminant migration from the WGL does not appear to be occurring. Factors such as biodegradation, adsorption or binding to soil material, volatilization, and/or dilution, would result in sufficient attenuation such that contamination is unlikely to reach French Stream, or would reach the stream at levels below detection limits of most analytical methods. The alternative selected for the WGL includes long-term monitoring of groundwater and surface water as a component of landfill closure to allow for continued assessment of the adequacy, reliability, and long-term effectiveness of this alternative.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

5. Comment from Dorick Corbo, South Weymouth Resident. I'd like to comment on your suggestion to construct a soil cover over contaminated land at the West Gate Landfill on the South Weymouth Air Station. Covering the soil in the long run would be more expensive. Without question the residents, wildlife, water, and air would be affected and then the cost would escalate. If this procedure is followed I'll move out of Weymouth.

Navy Response: There are several factors that the Navy must consider in its assessment of alternatives under CERCLA and the NCP. The NCP evaluation criteria are grouped, in order of priority, into the following three categories: (1) threshold criteria, (2) primary balancing criteria, and (3) modifying criteria. The threshold criteria (overall protection of human health and the environment and compliance with ARARs) must be met in order for the alternatives to be eligible for selection. Once the threshold criteria are met, the primary balancing criteria (long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short term effectiveness, implementability, and cost) are used to evaluate, compare, and weigh the advantages and disadvantages of each alternative. Finally, the modifying criteria (state acceptance and community acceptance) are considered. Although the modifying criteria are important in the evaluation process, they do not necessarily outweigh the threshold and primary balancing criteria that have been met.

A detailed analysis was performed on the alternatives developed for the WGL using all nine NCP criteria prior to rendering a final remedial decision. After reviewing the input from the community and giving all of the alternatives careful consideration, the Navy has concluded that the most appropriate remedy for the site is Alternative WGL-3: Soil Cap for Landfill Material, Long-Term Monitoring, and Institutional Controls. The cost estimates for WGL-3 include long-term monitoring (a detailed long-term monitoring plan will be developed during the remedial design phase) and performance of CERCLA-required five-year reviews, to ensure that the selected remedy remains protective of human health and the environment. Construction of a soil cap would protect human health and ecological receptors (e.g. wildlife) by creating a physical barrier to landfill materials; long-term monitoring and O&M activities will assess the effectiveness of the remedy.

Consistent with EPA guidance under CERCLA, the lowest cost alternative that will be protective of human health and the environment and meet the federal and state regulations was selected.

6. Comment from Philip Barker, Weymouth Resident. It looks to me that you have done a thorough study of the problem. I would like to ask a couple questions.

- 1) WGL-4 – Would a filterable membrane liner trap usable gases to be utilized for sources of energy?
- 2) WGL-3 – Farmers use limestone dust to sanitize soil, Would baking soda be feasible? It helps neutralize the soil.
- 3) WGL 5 – Just takes the problem somewhere else.
- 4) WGL 2 – Similar

Navy Response: WGL-4: A filterable membrane liner would allow precipitation and gases to pass through. Thus, this option would not allow for collection of landfill gases.

WGL-3: This option does not include treatment. Adjustment of the acid/base content of the soil (e.g. neutralization) as suggested in the comment, is not an element of this alternative. If treatment of acidic soils was evaluated in a feasibility study for a site, adding alkaline materials might be evaluated as part of a treatment option.

WGL-5 and WGL-2: Comment noted. Capping is an accepted presumptive remedy for landfills.

RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY

7. Comment from Bruce Knapp, South Weymouth Resident. Any of these Remedial Alternatives other than WGL-5 (the complete removal of all debris from the site) is not acceptable. The Navy must be “responsible” for their contamination of this site.

Navy Response: Navy is responsible for and committed to the cleanup of all sites on the base. As such, it is Navy’s responsibility to select a remedy that is consistent with CERCLA, is protective of human health and the environment, and also meets federal and state requirements. Please also see the Response to Comment #5.

8. Comment from Harvey Welch, Weymouth Resident. I believe the safest alternative would be WGL-5; Removal and dispose of all WGL materials off site. The toxic chemicals and metals found in samples on the site such as polychlorinated biphenyls, dioxins, lead, arsenic, mercury, antimony, and vanadium are just a few of a long list of toxic chemicals and metals found at the West Gate Landfill. The landfill had been used for approximately 30 years, from the 1940’s through 1972, when there were no regulations meaning there are all types of toxic materials yet to be found. A prime example of this is when environmental studies were conducted by the Navy which found plastic buckets, metal drums, and other containers. With a landfill 5 ¼ acres in size and on average 10 feet deep there are hundreds if not thousands of containers of dangerous chemicals such as insecticides, solvents, paint thinners, and used motor oil that are deteriorating and leaking dangerous chemicals into the environment. The landfill is located in an environmentally sensitive area bordering a large wetland area and French Stream, making the removal of any toxic material extremely important. Because of its location and the many toxic materials found there, the only way to guaranty the area is clean is by removal of this dangerous and toxic waste offsite.

Navy Response: The Navy has conducted several investigations to determine the nature and extent of potential contamination, and to adequately characterize the physical and ecological settings of the WGL. These investigations were done in accordance with CERCLA, the NCP, and the MCP. The EPA and MADEP have been involved in each step of the evaluation process. CERCLA and the NCP required consideration of several factors to assess alternatives at sites where a remedy is required. Therefore, a detailed analysis was performed on the alternatives developed for the WGL using the NCP criteria prior to rendering a final remedial decision. Based upon an evaluation of the NCP criteria and several technical reasons, the Navy has concluded that the most appropriate remedy for the site is Alternative WGL-3: Soil Cap for Landfill Material, Long-Term Monitoring, and Institutional Controls.

This alternative will eliminate any routes of exposure to materials under the engineered cap. The extent of materials present in the wetlands will be determined during the PDI. Removal of these materials will be included in the remedial design, as will restoration of the impacted wetlands. The remedial design will also reduce the footprint of the landfill area to be capped. Following construction of the cap, long term monitoring will be performed to ensure there are no impacts to the wetlands, French Stream, or the surrounding area.

9. Comment from Jill Cowie, Coordinator, Watershed Action Alliance of SEMA. I am writing on behalf of the Watershed Action Alliance of Southeastern Massachusetts (WAA), a coalition of watershed associations committed to protecting and restoring the watersheds of Southeastern Massachusetts through strategic collaboration and grassroots efforts. WAA primarily focuses on the restoration of aquatic habitat and natural hydrology, the efficient and sustainable use of our water resources, and smart growth and ecologically sustainable public policy.

As one of the Commonwealth’s premier “smart-growth” projects, the redevelopment of the South Weymouth Naval Air Station Base presents a unique opportunity to restore the natural hydrology, protect riverine habitat, and ensure sustainable water use on 1500 acres that will soon be home to 2,855 households and up to 2 million square feet of commercial businesses/industry. As a project that has 33 active clean-up sites, the close coordination between clean-up and reuse is paramount to the success of

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

the redevelopment. It is with this lens that we voice our concerns regarding the preferred solution to cap the West Gate Landfill and recommend that the Navy choose instead WGL-5, removal and disposal of all WGL materials off-site.

Aquifer Use

The preferred remedy includes an institutional control that restricts the use of groundwater beneath the site. Although, the South Shore Tri-Town Development Corporation has indicated in the recent past that the use of the aquifer may not be feasible, they now indicate that the aquifer will be utilized in the short-term for irrigation (until the on-site WWTP is producing recycled water). However, the FEIR indicates that the water supply will be phased with .65 mgd of the 1.4 mgd build out estimate being supplied by MWRA. Based on the information presented in the FEIR, it appears that the long-term water supply source for the project is not yet defined, and as a result continual questions about the aquifer use remain relevant and should be answered before moving forward with a resolution. If any possibility exists that the on-site well will be used as potable water source (including irrigation uses for which recycled water is not permitted), then we recommend the Navy moves forward with alternative WGL-5 and dispose all materials off-site.

Uncertainty in Ground Water and Sediment Characterization

We are concerned that EPA's review of the Responsive Investigation and Feasibility study (RI/FS) identified significant uncertainty with respect to the "adequacy of waste/contamination delineation in the wetland areas adjacent to the southern perimeter of the landfill. Similarly, since deep ground water conditions are not sufficiently understood in the down-gradient areas, generally south of the landfill... and in deeper aquifer units... additional monitoring well control will be needed" (EPA letter, 9/9/2006).

This lack of certainty is of concern, since the Navy concludes that groundwater clean-up is not warranted because arsenic and dibenz(a,h)anthracene were found in only one groundwater sample. More sampling of the deep groundwater aquifer and the wetlands is needed to create an informed determination of human health risk associated with the landfill. We also believe the detection levels of contaminants found in groundwater warrants a more aggressive clean-up plan. A few of our concerns follow:

- The detection level for arsenic (4.6 ug/l equals 4.66 ppm) is dangerously close to the Natural Academy of Science approximate total cancer health risk of 1 in 1,000 when 2 liters of tap water are consumed daily with 5 ppm of arsenic.
- 1,4-dioxane is generally not biodegradable and is persistent in groundwater. Little scientific data is available on the long-term effects of 1, 4 dioxane on human health, and EPA has listed it as a probable human carcinogen. The EPA has not yet established a federal drinking water standard or maximum contaminant level for 1,4 dioxane.
- Chromium is listed by the Department of Health and Human Services as a carcinogen and is known to cause lung cancer, stomach ulcers, and kidney and liver damage. It attaches to soil and eventually enters groundwater. Although the detection level (71 ug/L) is below the EPA drinking water standard of 100 ug/L, we believe the removal of contaminated soil is warranted.

Institutional Controls Conflicts with Redevelopment Plan

The institutional control for the capping of the landfill precludes the use of digging, yet the preferred parkway alternative crosses a portion of the WGL (FEIR 3-15). This apparent conflict needs to be resolved. In general, the reuse of this area as a village center seems at odds with deeded land-use restrictions associated with a capped resolution. We support South Shore Tri-Town Development Corporation (SSTTDC) statement of intent to remove the contaminated material and urge the Navy and SSTTDC to take the needed steps towards this resolution.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

Monitoring

The plan calls for a review of site conditions every fifth year for the alternatives where disposal materials stay at their original location. We recommend that monitoring of groundwater and surface water be performed on an annual basis for 10 years following complete removal (WGL-5) to ensure success of the resolution. Although removal may be more costly in the short-term, the cost of long-term monitoring, maintenance of the cap, and enforcement of institutional controls are avoided. We recommend that SSTTDC hire an independent Licensed Site Professional to conduct the ten year monitoring and be accessible to the public for data interpretation and education regarding all site-related clean-up issues. Also, we recommend that French's stream sediment and floc are included in the proposed ten year monitoring plan for the WGL.

Additional Restored Wetlands

The Watershed Action Alliance supports the restoration and re-establishment of wetlands associated with the removal of the disposal material offsite. This restoration will help mitigate the loss of 4,620 s.f. of wetlands caused by the redevelopment.

Summary of Recommendations

The Watershed Action Alliance recommends the Navy removes all contaminated materials (Alternative WGL-5) for the following reasons.

- 1) The long-term water supply source for the project has not been determined, leaving the possibility that the near-by on site-well will be used as a potable water source.
- 2) More sampling of the deep groundwater aquifer and the wetlands is needed to make an informed determination of human health risk associated with landfill contaminants. The detection levels of measured groundwater contaminants warrant a more aggressive clean-up plan.
- 3) The institutional controls of the capped alternative conflict with village center reuse plans. We support South Shore Tri-Town Development Corporation (SSTTDC) statement of intent to remove the contaminated material and urge the Navy and SSTTDC to take the needed steps towards this resolution.
- 4) We recommend that monitoring of groundwater and surface water be performed on an annual basis for 10 years following complete removal to ensure success of the resolution. Although removal may be more costly in the short-term, the cost of long-term monitoring, maintenance of the cap, and enforcement of institutional controls are avoided. We recommend that SSTTDC hire an independent Licensed Site Professional to conduct the ten year monitoring and be accessible to the public for data interpretation and education regarding all site-related clean-up issues. Also, we recommend that sediment and floc are included in the proposed ten year monitoring plan for the WGL.

Navy Response: This response addresses the four recommendations summarized above.

- 1) As noted in the comment, the long-term water supply for the base redevelopment has not yet been determined. The preferred alternative, WGL-3, includes implementing an institutional control to prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to human. The Proposed Plan states that it will be incumbent upon the Local Redevelopment Authority to take the environmental condition of the property, planned remedial activities, and resource constraints into consideration when developing and implementing the reuse plan.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

Comments regarding SSTTDC's/LNR's plans for the post-transfer redevelopment, or the pace of redevelopment, with respect to the towns' capabilities/infrastructure/concerns can be directed to those corporations. If changes to the reuse plan/zoning did occur after transfer, then the new property owner would be responsible to ensure that the environmental conditions were suitable for the new redevelopment plans.

2) Groundwater monitoring conducted as part of the pre-design investigation (PDI) and during the long-term monitoring (LTM) program will be used to verify whether arsenic, polycyclic aromatic hydrocarbons (PAHs), and chromium are contaminants of concern (COCs), as identified in the RI, and whether additional groundwater evaluations are needed downgradient of the WGL. The groundwater monitoring will be conducted to verify that concentrations of chemicals identified during the RI do not pose potential health risks. During the RI, arsenic, PAHs, and chromium (assumed as hexavalent) were identified as the primary contributors to human health risk. Please note that the concentrations of contaminants of potential concern listed in the human health risk assessment discussion in the Proposed Plan are maximum concentrations detected. In addition, 1,4-dioxane was not identified as contributing to risks in any media. RI data for these chemicals are summarized below.

Arsenic was detected at a maximum of 4.6 µg/L (µg/L = parts per billion, or ppb) in only one sample, below the maximum contaminant level (MCL) of 10 µg/L.

PAHs were only detected in one sample during the Phase II RI program. A variety of PAHs were detected in many soil samples, which is indicative of disposal of asphaltic paving materials at the WGL. Only one groundwater sample contained detectable concentrations of PAHs. PAHs generally have low solubilities in water. These results suggest that PAHs in the groundwater sample are likely the result of the presence of suspended solids. Otherwise, PAHs would have been detected in the other five monitoring wells, instead of being reported as non-detect or at the sample quantitation limit as shown in the data tables in the RI report. Therefore, the risk posed by the PAHs in groundwater is likely overestimated.

Another risk driver is chromium, which was conservatively designated as hexavalent for the Phase II RI risk assessment. Hexavalent chromium is more toxic than trivalent chromium. During the Phase II RI sampling, the oxidation-reduction potential (ORP) of the monitoring wells ranged from 74.4 mV to 258.6 mV, which is indicative of reducing conditions that are favorable for chromium to be present in the trivalent (and much less toxic) state. Therefore, the calculated risk for a future on-site resident associated with chromium in groundwater is also overestimated. In addition, total chromium was detected at less than the MCL.

If these chemicals are identified as contaminants of concern based on groundwater data collected during the PDI and LTM programs, then the need to monitor groundwater downgradient of the WGL will be revisited by the Navy and the regulatory agencies. Future downgradient evaluations could then be incorporated into the LTM phase.

The need to pursue additional investigation in the deep overburden and bedrock aquifer should be determined based on whether contaminants of concern associated with the WGL are actually migrating off site. As discussed above, chemicals identified in the RI Report as the apparent risk drivers (arsenic, dibenz(a,h)anthracene, and chromium) may not be of concern because fairly conservative assumptions were used to develop the risk estimates.

3) The WGL FS considered a range of viable alternatives that achieve risk management goals consistent with CERCLA and the NCP, and are protective of human health and the environment. In addition, capping is an accepted presumptive remedy for landfills. Future reuse of the site is a factor to be considered, but does not directly dictate the selection of a remedy. Capping is recommended in EPA guidance for municipal and military landfills where only low-level threats are present, as is the case at WGL, and where land reuse plans do not indicate that an alternative remedy may be more appropriate.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

The Navy has determined that the current broad and diverse land reuse plans at WGL do not justify selecting a remedy other than Alternative WGL-3. EPA has concurred with Navy's preferred alternative, WGL-3: Soil Cap for Landfill Material, Long-Term Monitoring, and Institutional Controls. Long-term monitoring for a period of 30 years is required by the state landfill closure regulations. Details of the long-term monitoring program will be developed during the remedial design effort.

4) Although not selected by Navy as the preferred alternative, Alternative WGL-5 was evaluated in the Feasibility Study as the best alternative in providing long-term effectiveness and permanence. Since all materials would be removed and confirmation samples collected to support this, 'clean closure,' no additional monitoring is required by federal or state regulation.

10. Comment from David Wilmot, Abington Resident. I wish to thank the Navy for extending the Public Comment Period through July 6, 2007 to allow myself and others the opportunity to weigh in on this most grave error in judgement on the Navy's proposed capping remediation of the highly contaminated WestGate Landfill site.

Our communities surrounding SWNAS have for decades served the Navy as hosts.

The Navy now proposes to reward us and other downstream communities, by leaving the most toxic of the 11 designated base SuperFund sites in place abutting Frenches Stream and adjacent wetlands, in total disregard of our, our children's, and our future children's, health.

Just today the Boston Globe reports that "statewide Autism rates have nearly doubled in the past five years. I have no doubt that a stunning rate occurrence would be in the proximity of toxic waste sites, industrial sites and current and former airport runways in Massachusetts, and nationwide. There is a small street abutting SWNAS where six of the eight homes on the street, at one time housed autistic children. I don't believe in such coincidences.

How does the Navy, or any factions of our government find it morally responsible to ignore the growing reams of evidence linking the exploding incidences of chronic health problems to chemical exposure?

These are truly dark times for our floundering democracy. Those of us living in blue collar neighborhoods like mine, urban neighborhoods, rural neighborhoods or Native American neighborhoods in proximity to current or former military facilities, are taking on a great incidence of environmentally-triggered diseases, in most cases, without their knowledge. There is no "Justice for ALL" in this country. The Department of Defense has a stranglehold on America's Public Health and Environmental Protection initiatives. This is most especially true of Americans not fortunate enough to live in the "best" neighborhoods.

I've grown ashamed of being under this current Administrations rule. Could our leadership be any more short-sighted in terms of protecting America's Best Interests? I fail to see how.

Example of Gross Short-sightedness: Proposed Capping of the WestGate Landfill CERCLA (SuperFund designated) Site.

Frenches Stream is a known headwaters of the North River Watershed. This is an important watershed resource for all of Southeastern Massachusetts. This is especially true to water-starved towns like the one I live in.

Recent efforts to get a copy of the Geochemical Stream Assessment have been unsuccessful, but I do know firsthand the following:

Close Examination of Frenches Stream as it exits the former base would prove it to be lifeless.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

I fail to see how the Navy and involved Federal and State regulators can award a "No Ecological Risk" assessment to a Basewide Watershed Study where in Frenches Stream downstream of the WestGate Landfill, no fauna exists to access.

As the stream enters the base from Thompson's Pond in Abington, it is alive with the fish, frog and macroinvertebrate creatures representative of a healthy benthic animal community.

When leaving SWNAS downstream of the WestGate Landfill, the stream is devoid of life, a metal-choked, orange flocculent stained stew of military released toxins, flowing through our communities, and for decades, depositing contaminated sludge in the wetlands that are contained within the Frenches Stream floodplain.

The Navy finds no necessity thus far in doing any testing for contaminants in adjacent base property wetlands prior to closing this landfill, or the responsible testing that should be mandated in all adjacent wetlands outside the base fence. This is irresponsible towards protecting the Public Health of former host communities. EPA and USGS testing conducted during the Old Swamp River Investigation proved that migration of airbase-released contaminants pool in adjacent wetlands.

The Navy continues to cling to the already dis-proven statement that "contamination has not migrated off base property". Statements such as this are completely irresponsible! How does the Navy justify this lack of responsible oversight?

The Navy finds no necessity in finding out what became of the disposal of 30+ years of toxic coal-burning power plant coal ash and flyash. If you ask many former sailors formerly stationed at the base how things were disposed of they tell me "we just dumped it in the river" or "we dumped it out in the woods" or "in the swamp". The Navy is now assuming their only toxic legacy is in a set number (11) of denoted Superfund sites such as the WestGate Landfill. Even on these known highly contaminated sites, we are supposed to approve of their lowball method of cleanup. How does the Navy justify the lack of complete examination of the property being returned to the private sector?

Our children, and some of us somewhat older people, play in these streams and swamps! The Navy is grossly irresponsible in proposing this toxic landfill stay in place atop wetlands that without complete removal has the potential of endangering so many!

How does the Navy explain this gross oversight in BRAC process?

The Department of Defense and controlling Federal and State regulator Leadership downplay the known need for adaptation of precautionary principles in addressing toxin cleanup.

It's true that adverse health effects from toxic exposures may take decades to manifest themselves in tangible diseases, but with all the currently emerging science linking chemicals and chemical mixtures to adverse, chronic health outcomes, it's long past time that the United States Navy and the Federal Department of Defense (DOD) spend the money required to DEFEND the public health of former host communities, and those others downstream.

As it is has been with Global Warming, our government lags behind the rest of the world in addressing the need for toxic substance remediation. The wastes that now sit atop the SouthShore's water supply, should be moved to a National Depository under a dry desert state, or perhaps in the future on the Moon or Mars. The current military-industrial complex should be looking beyond their current financial dictates towards the future. Most financial powers in place prohibit rededication of any part of their amassing wealth to address the serious changes necessary to sustain life on this planet.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

The Navy and DOD need to rededicate a like portion of their massive budgets towards protecting the public health of the Americans they are sworn to protect.

This country is in dire need of change. This BRAC process ongoing on the former SWNAS is in dire need of change. All across this country former military properties, through the use of irresponsible "Covenant Deferral Requests" and "Early Transfers" are being passed into the eager hands of waiting developers where Superfund mandated cleanups are being entrusted to companies driven to maximize their profit margins.

Former host communities citizens in most cases unknowingly suffer increased health burden.
The National Health System suffers, as we live longer, yet sicker lives.
Our National priorities are grossly irresponsible to future Americans.

Because in most cases our people are unaware of the risks you are saddling them with, does not mean you are without moral responsibilities to return the former military land and waterways in a state of health to the best of your abilities. But, truth and justice here are continually overlooked to force political and financial agendas, in lieu of moral responsibilities!

Is the Navy aware of the preponderance of autoimmune, among other, diseases in our neighborhoods?

Why did the Navy insist on withholding health information of former military personnel, when the Massachusetts Department of Public Health(MDPH) requested information for a study to establish incidence of autoimmune disease in proximity to SWNAS?

This irresponsible lack of cooperation, completely invalidates the results of years of work, and facilitates the waste of tax payers dollars. Does the Navy hide behind the Privacy Act as reason for their noncompliance? Given the fact that the MDPH had no interest in publishing any personal information, how is this excuse in any way valid?

As Mr. Gore points out boldly in the title of his latest book, our democracy is suffering a great "Assault on Reason". Eight years of my life trying to bring one man's well intentioned Reason to this SWNAS BRAC process is stonewalled at every turn by politics and money! Sound Reason is disregarded as so much bothersome rubbish. This is not how democracy is supposed to operate. I'm sure Mr. Gore would agree.

How does the Navy explain their decision to stonewall the MDPH study?

With diseases like Multiple Sclerosis(MS), Lou Gehrig Disease(ALS), Lupus, Autism, and many already proven environmentally triggered Cancers exploding in incidence across the country, in many documented cases in proximity to National Priority Listed SuperFund sites like SWNAS, how is the Navy able to reason that saving 30 million leaving this toxic landfill in place located in wetlands to perpetually release buried contaminants into the groundwater and surface wetlands, is the prudent, responsible way to remediate this situation? I would appreciate a detailed analysis of your decision, specifically addressing how Public Health was factored in.

I tried what I could to involve local health boards and in Abington the Town Manager and Selectmen in this BRAC process, to no avail. Local government is afraid of lowering the real estate market, and it seems local health boards are unprepared to look much beyond dumpster placement and smoking restrictions in local pubs. Why has the Navy made no stronger effort to engage local governing boards with the Restoration Advisory Board meetings or the BRAC process at SWNAS?

RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY

A very recent study by the Harvard School of Public Health reports that Chronic Illnesses in American Children have nearly quadrupled in the past three decades.

Some of this is surely due to more sedentary lifestyle, lack of exercise and diet choices, but those things do little to explain the great rise in birth defects, learning disabilities and autism.

Why have teenagers and 20-some-things, only in recent years been diagnosed been with Multiple Sclerosis? Their numbers are growing around here.

Why has the DOD only recently given the Veterans Affairs Bureau the right to classify MS and ALS disability claims as "Service Related Disability"?

It has been proven in the laboratory that Military JP-8 Jet Fuel is extremely toxic to the immune systems of rats. Might the use of JP-8 Jet Fuel at SWNAS help explain the high incidence of Autoimmune and other diseases in my neighborhood? All efforts to orchestrate a combining of existing MDPH geographically-tagged Disease Data, with the existing Geographical Navy Database in use at SWNAS, already containing the geochemical and hydrogeographical data collected by the Navy and regulators. This existing data could easily be augmented with geographical placement of streams, runways, taxiways, warm-up pads and known spills and fuel jettison areas to provide a geographical look at former military exercises and possible effects on public health.

There is the possibility we stand to learn things of global importance here! And yet, I'm fought every step of the way.

How can our sworn protectors validate their apparent fear of the truth? Please comment.

Given the DOD's apparently growing knowledge of military released toxic substances adverse effects on human health, how can the Navy justify prioritizing financial concern over people's health?

The Navy is not the only culprit in this moral injustice.

The Washington decision makers atop the Federal Environmental Protection Agency (EPA) also shares in blessing this moral injustice taking place here and now.

Not the good people involved here on the ground level, but the decision makers in Washington who give them their marching orders.

The EPA made the decision that our suburban communities would be aptly served by designating cleanup levels to adhere to "Urban" level remediation standards. I would venture that there are few living in our communities who would consider themselves living in a city. I would also venture to say that more well-to-do towns situated equidistant or less from the city, say Hingham or Milton, would have the political power and legal wherewithal to fight this unjust "Urban" tag from being affixed.

Knowing firsthand how heated the remedial discussions between the Navy and the regulators, both EPA and State Department of Environmental Protection(DEP) often got, I wonder whether this "Urban" designation affixed to our suburban communities, was in any way the result of debate with the Navy's position on expected cleanup levels and costs?

I would appreciate the Navy commenting on this.

I also hold the EPA responsible for establishing Background Levels for comparative analysis of tainted sites vs. "naturally occurring" levels of mediums from samples of soils, waters and sediments collected directly on the base. Subjected to 50 years of military aviation exercises, I will never agree that any part of the base should carry a tag of "naturally occurring". Again, I would ask the Navy if their position on costs played a role in establishing of "Background Levels" establishment?

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

I know that the DOD insists that the "Lead Agent" in BRAC processes is an appointee from the military. Does the "Lead Agent" carry enough power to dictate all remediation parameters and protocol? Please illuminate the power wielded by the appointed "Lead Agent" in a "Memorandum Of Agreement (MOA)" during a BRAC military environmental remediation? I question whether this "Lead Agent" designation gives a crippling disadvantage to the agencies responsible for protecting the environment and public health.

The federal EPA is likewise responsible for keeping the cleanup levels of individual chemicals, metals and other toxic substances, updated to the evolving findings of sound science.

Environmental Protection is by definition a proactive precautionary function.

The EPA announced five years ago that the model used to calculate each substance minimum cleanup level(MCL) was flawed, as it had been devised using an Average 160-180 pound man as a constant in it's calculation of chemical health risk. The EPA further stated that children would be in many cases at least ten times as susceptible to chemical assault from standardized model in use. Those EPA MCL's have yet to be enforced. I have to assume the political climate and the DOD's position in it, has thus far held up the responsible update of parameters. Is the Navy sworn to uphold MCL's as devised by the EPA?

How can Neurotoxic levels of Manganese, as well as other metals, for instance Hexavalent Chromium, be allowed to flow out of SWNAS with the complete blessings of the EPA? As one of the many folks around here suffering from a neurological disease, I would once again ask for comment from both the Navy and EPA? If you need to kick that question upstairs, feel free, but for once please give me a reasonable response to my question.

Given the inevitable "no apparent health issues" rubber stamp that the federal Agency for Toxic Substances and Disease Registry(ATSDR) constantly bestows on CERCLA mandated BRAC Public Health Assessments, I would be dumbfounded to find out that this agency was not fully controlled by the DOD. Please supply ATSDR's final assessment of the WestGate Landfill.I am assuming of course that they had some input and final assessment prepared before the Navy decided on a Final Proposal. Please share what if any involvement ATSDR was afforded in this finalization.

I'd also be very interested in learning how ATSDR finds it in any way responsible to not release the results(albeit partial,with the Navy's previously cited lack of information release) of the MDPH MS-ALS Incidence Study they are holding in "necessary peer review". I myself was instrumental in getting that study off the ground here, and I resent what I can only assume is politically mandated foot dragging, in presenting timely results, while development plans and efforts proceed without benefit of collected data.

All these issues bring questions to the argument of whether the DOD and it's BRAC process, holds responsible public health remediation in a perpetual stranglehold, away from basic human rights moral responsibilities. I would like to ascertain in detail how the Navy used the multi-faceted Final Remediation Derivation technique to settle on their selected method? I need to be shown clearly that cost alone wasn't the only factor in the derivation.

After eight plus years of intense involvement in this BRAC process at SWNAS, I can't help feeling like this much touted "Public Process", Is a great waste of the Public's time. Even our most reasonable well-researched opinions and findings are perpetually ignored or disregarded.

The WestGate Landfill given all I've learned about it, was used as a catchall for decades of military waste disposal. Given the little regard for the environment practiced in those decades of use, a toxic legacy should be deemed by thinking, responsible authorities,as warranting complete removal from

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

atop a wetland capable of perpetually distributing leeching toxins to an unsuspecting populace with children.

I ask the Navy in all sincerity, to reconsider the alternative of total removal. An already well-recognized floundering national health care system, can ill afford greater future increases of chronic disease occurrences. It is time for the factions of the Department of Defense to use a greater and responsible portion of their allotted resources to Defend the Public Health and protect what should be the inalienable rights of All Americans.

Navy Response: The concerns and questions contained in Mr. Wilmot's comments have been grouped into categories and are addressed in the responses that follow.

Public health concerns: The CERCLA process for WGL included risk assessments to evaluate whether concentrations of contaminants of potential concern present at a site pose a risk to people under various scenarios, e.g., future residents, trespassing children, construction workers, future recreational children, etc. as well as terrestrial and aquatic plants, mammals, birds, and other wildlife. Thus, CERCLA evaluates potential risks due to concentrations of chemicals currently present at a site. CERCLA does not evaluate public health issues related to historical exposures to chemicals in the environment. Studies of historical exposures are conducted by the Massachusetts Department of Public Health and ATSDR. The Navy is well aware of the MDPH ALS/MS study, as well as the earlier ATSDR study of NAS South Weymouth, but has no direct involvement with either MDPH or ATSDR. ATSDR has conducted well surveys of the area and has distributed reports and presented details at public meetings. The Navy suggests that questions related to ATSDR's work be directed towards ATSDR for a more thorough discussion. The ATSDR study was completed in 1999 and can be found at: http://www.atsdr.cdc.gov/HAC/PHA/weymouth/wey_toc.html.

Community involvement in the cleanup process: Navy's reports are provided to the four local libraries and are also available at the CSO on the base. In addition, Navy has provided copies of various documents to individuals upon request. Recently, copies of the Basewide Geochemical Study Technical Memorandum were provided to the public at a RAB meeting. Minutes of all RAB meetings, and monthly RAB updates, are mailed to over 100 addressees, including officials (selectmen, boards of health, fire and police departments, etc.) in Weymouth, Abington, and Rockland. Proposed Plans are mailed to over 350 individuals. Consistent with Navy's Community Involvement Plan, legal notices are published in the Weymouth News, Patriot Ledger, and Rockland Standard/Mariner announcing the availability of Proposed Plans for review, public hearings, etc. Notices are also posted in the Weymouth Town Hall.

Navy's Clean-up Program, WGL investigations and risk assessments: The Navy is committed to investigating and cleaning up environmental sites at NAS South Weymouth. Since the mid-1980s, the Navy has been conducting, and continues to conduct numerous environmental investigation and/or cleanup activities at NAS South Weymouth. These activities have been conducted under either the federal Superfund program, in accordance with CERCLA and the NCP, or the state cleanup program, in accordance with the MCP. In addition, the Navy initiated an environmental baseline survey (EBS) to further identify potential areas warranting investigation and cleanup that were not already covered under the federal or state programs. A basewide assessment has been completed to evaluate issues of concern to the regulators and public, including a geochemical study and human health and ecological risk assessments of French Stream.

In accordance with federal and state cleanup program guidance, areas to be investigated are typically identified based on historic site uses and activities, Navy reconnaissance, known or suspected areas of potential contaminant releases (e.g., an underground fuel storage tank), analytical data, or reported observations from the community (e.g., iron precipitation in French Stream). These areas are further investigated through surface and subsurface explorations, geophysical surveys, ecological surveys, and/or the collection of soil, sediment, groundwater, and surface water samples and laboratory analysis to

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

identify and delineate the extent of potential impacts. Human health and ecological risk assessments are then conducted using site-specific data to determine whether the “site poses potential risks to human health and the environment, which may warrant remediation and cleanup under the federal and state programs.”

The Navy has identified 10 CERCLA sites, approximately 30 MCP sites, and over 100 EBS sites at NAS South Weymouth that are either currently being investigated, are in the process of being remediated, or have been closed in accordance with applicable state and federal regulations. To date, none of the data collected from NAS South Weymouth indicates that any contamination has migrated off the base into the surrounding communities. However, if, through its ongoing programs, the Navy identifies offsite contaminant migration from Navy sources on the property, the Navy will ensure that it is cleaned up in accordance with applicable state and federal laws and regulations.

As part of the WGL Remedial Investigations (Phases I and II), the Navy has conducted numerous subsurface investigations (soil borings and test pits) and geophysical surveys to delineate the extent and characterize the material that comprises the fill within the WGL. Although it is impractical to view and characterize all materials within the WGL, the Navy and their professional consultants are confident that sufficient information has been collected over the past decade to sufficiently describe the chemical and physical characteristics of the WGL and select an appropriate remedy.

There were some chemicals detected at the WGL above laboratory detection limits or background conditions in soil, sediment, surface water, and groundwater samples collected as part of the RI field program. Therefore, in accordance with Superfund guidance, the Navy conducted a human health and ecological risk assessment to further evaluate potential risks from the levels of those chemicals detected.

Although the baseline human health portion of the risk assessment performed for the WGL identified potential risks for a future on-site resident exposed to site groundwater, the Navy, EPA, and MADEP have determined that groundwater cleanup is not necessary because: (1) arsenic and chromium concentrations are below drinking water standards; (2) arsenic and dibenz(a,h)anthracene were detected in only one groundwater sample; and (3) the risk assessment was highly conservative which tends to overestimate potential risks. As described in the Response to Comment #9, item 2) above, Navy, will conduct a PDI to collect additional information to be used in the remedial design effort and also to verify that concentrations of chemicals identified during the RI do not pose potential health risks.

It is important to note that under CERCLA, if a remedy selected in a ROD is found to be ineffective at achieving the remedial objectives for the site, then an evaluation of other options is warranted. This is typically done for the 5-year review, but may also be done during the long-term monitoring program. If a remedy that is implemented under CERCLA becomes ineffective, EPA may require corrective action to repair the in-place system, or may require the consideration of alternate remedies. CERCLA provides for making changes to the selected remedy through a Memorandum to the Site File (for insignificant changes) or through implementation of an Explanation of Significant Differences (ESD) or ROD Amendment (for significant and fundamental changes). As the lead agency for all investigation and cleanup programs ongoing at NAS South Weymouth, the Navy has the obligation under CERCLA to continue to evaluate the protectiveness of the selected remedy. However, the Navy may arrange, by contract or otherwise, for another party (ies) to carry out these responsibilities.

11. Comment from Mike Bromberg, Rockland Resident. Please accept these as my comments to the Proposed Plan Operable Unit - West Gate Landfill Naval Air Station South Weymouth, Massachusetts.

Very little effort has been made on my part for these comments.

Community acceptance of the Proposed Plan is a step in the clean-up process that the Navy has historically shown to totally ignore on the SWNAS. But for what its worth,

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

The Navy should Remove and Dispose of all WGL materials off-site.

Generally, capped toxic landfills are away from residential housing, where kids would not likely play in or around on a daily basis. The WGL is in the core of the Village Center Plan, literally in the backyards of 2855 units of housing. This is a no-brainer. Please remove and Dispose of all WGL materials off-site and do not put any future children living at Southfield at risk.

The cost of removing the West Gate appears highly exaggerated.

The cost of capping the West Gate appears to be minimized.

In the long run, the cost of removing the WGL now will be more beneficial to the taxpayer and will guarantee there will be no ill health to the children of Southfield caused by exposure to this landfill.

Navy Response: As noted in the Response to Comment # 2, Navy's preferred alternative for WGL is consistent with CERCLA; EPA concurs with this alternative. As noted in the Proposed Plan: "It will be incumbent upon the Local Redevelopment Authority to take the environmental condition of the property, planned remedial activities, and resource constraints into consideration when developing and implementing the reuse plan."

As noted in the Response to Comment # 1, future reuse of the site is a factor to be considered, but does not directly dictate the selection of a remedy.

Please also see the Response to Comment #5.

In accordance with Superfund guidance, the cost estimates developed in the FS should be accurate to within +50 or -30 percent of the actual cost. Regardless of the accuracy of the cost, such estimates are used in budget planning. The costs initially developed for each of the six alternatives and presented in the January 2003 Feasibility Study, were based on a 2001 present worth cost. The costs for each of the remedial alternatives summarized in Table 1 of the Proposed Plan were adjusted to reflect a 2005 present worth cost. This adjustment resulted in a 30 percent increase in the WGL-3 estimated cost (\$2MM to \$3MM) and a 53 percent increase in the WGL-5 estimated cost (\$21.9MM to \$33.6MM). The more significant increase in the WGL-5 estimated costs are due to the large increases in transport costs for off-site disposal of the excavated landfill materials.

Consistent with EPA guidance under CERCLA, the lowest cost alternative that will be protective of human health and the environment and meet the federal and state regulations was selected.

12. Comment from Anne Hilbert, North Weymouth Resident. As a resident of Weymouth I am concerned about this re-development, and the contaminants in the soil, along with the eleven superfund sites that we know off.

This land has been vacant for many years, and has been previously stated has eleven superfund sites. Although you assured us that everything is all right to go ahead with this development, we cannot trust the developer (LNR) they have a long track record.

When this company will not take out a bond on surrounding neighborhoods this speaks volumes.

Earlier on in the process this company was satisfied with capping the land. Now that they are going to supply the water to this development they want the soil removed on one of their sites. This only tells me they want to put their drinking water supply at this location. I shiver to even think that this will happen.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

This is a company that has been less than forthcoming during the whole process. What is to stop them from now if this land is turned over?

Navy Response: Navy intends to complete the implementation of the preferred alternative, WGL-3: Soil Cap for Landfill Material, Long-Term Monitoring, and Institutional Controls. Following completion of the soil cap, Navy will perform long-term monitoring consistent with a plan to be developed during the remedial design phase. As discussed in the Proposed Plan, land use controls (LUCs) will be prepared and implemented by Navy. LUCs may include legal and administrative measures to prevent potential exposure to contaminated soil and groundwater, and to prevent the disturbance of the cover. The Navy will ensure consistency between the land use controls required under the preferred remedy and the proposed reuse plan by imposing deed covenants on the WGL site that will run with the land and pass to the recipient of the property and subsequent owners. Such covenants ensure that land use controls are in place and are legally enforceable upon any recipient. As such, even though the property where the WGL site is located is zoned for mixed use that includes residential, deed covenants which run with the land will prohibit residential use.

13. Comment from Betsy White, Resident. Please do more to get rid of the contaminated soil than try to cover it up...there are too many communities where capping hasn't worked...My husband and I have seriously considered buying into the new development, but will not until/unless there is a better solution than capping the waste. I agree with the developer. Eliminate the problem, don't just put a band aid over it.

Navy Response: Please see the Response to Comment #12 above.

14. Comment from Allen Hemberger, Manomet Resident. A standard cap on the West Gate Landfill at Weymouth Naval Air Station would work.

Two downsides: 1. 30-year post-closure monitoring is required per state solid waste regulations; and 2. landfills aren't the best structural material for putting roads on, as is the plan. Reconfiguring the road and/or landfill footprint would solve that problem.

If LNR wants the landfill removed (which of course would solve the closure problem once and for all), then they should pay the difference between the standard cap, and the much more expensive dig-and-haul costs. They knew what was there when they made the deal.

Navy Response: Comment noted. Following completion of the soil cap, Navy will perform post-closure monitoring consistent with federal and state regulations. A long-term monitoring plan and operations and maintenance plan will be developed during the remedial design phase. As discussed in the Response to Comment #12, Navy will ensure consistency between the land use controls required under the preferred remedy and the proposed reuse plan by imposing deed covenants on the WGL site that will run with the land and pass to the recipient of the property and subsequent owners.

15. Comment from Robert Johnson, Massachusetts Highway Department. [These comments were received after the close of the comment period.] A review of *Proposed Plan for Operable Unit 1 — West Gate Landfill Naval Air Station South Weymouth, Weymouth Massachusetts* (the Proposed Plan) was completed. The document summarizes the steps Navy took to arrive at a preferred clean-up approach for the West Gate Landfill site. The Proposed Plan is intended to comply with Section 177(a) of the Comprehensive Environmental Response, Compensation and Liability Act and with Section 300.430(0)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan.

According the Proposed Plan, the Navy's preferred alternative for remediation of the West Gate Landfill is to construct a soil cover over the landfill, conduct long-term monitoring and enact institutional controls. Additional information indicates that construction of a traffic circle is proposed on the landfill land. The

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

Proposed Plan does not include a geophysical evaluation of the landfill material for supporting a roadway or consider that roadway maintenance activities could threaten the integrity of a soil cap.

Base upon the information presented in the Proposed Plan, the West Gate Landfill may represent a source area for continued release of hazardous materials to the environment. This is evidenced by the presence of contaminants, such as volatile and semi-volatile organic compounds, polychlorinated biphenyls, and dioxins, in soil; as well as by the observation that metal drums and plastic buckets, which are commonly used to contain hazardous materials, are buried in the landfill.

It is recommended that the Navy reevaluate its preferred alternative and give further consideration to the alternative that calls for excavation of the landfilled materials for off-site disposal. Firstly, removal of the materials represents a major remedial milestone in that a source area would be eliminated. Secondly, the existing landfill material may be an inappropriate foundation for roadway construction, as well as the fact that a roadway will require maintenance activities (e.g. excavation for drainage and utility work), which may compromise efforts to enforce institutional controls over the land to protect the soil cap and contain contamination.

Navy Response: The WGL Feasibility Study considered a range of viable alternatives that achieve risk management goals consistent with CERCLA and the NCP, and are protective of human health and the environment. Navy's preferred alternative for WGL is consistent with CERCLA; EPA concurs with this alternative. Capping is an accepted presumptive remedy for landfills. Future reuse of the site is a factor to be considered, but does not directly dictate the selection of a remedy. Consistent with EPA guidance under CERCLA, the lowest cost alternative that will be protective of human health and the environment and meet the federal and state regulations was selected.

Navy will be responsible for the institutional controls and long term monitoring program that will be developed during the remedial design process. The long-term monitoring of surface water and groundwater, included as components of the selected remedy, are required by state landfill closure regulations to assess whether chemicals are leaching from the capped landfill. This post-closure monitoring data will be used to assess the adequacy, reliability and long-term effectiveness of the remedy. The details of the monitoring program will be developed with input from EPA and MADEP. Operation and maintenance, including inspections of the cap, will be performed by Navy or its contractors, and any needed repairs made.

As noted in the Proposed Plan: "It will be incumbent upon the Local Redevelopment Authority to take the environmental condition of the property, planned remedial activities, and resource constraints into consideration when developing and implementing the reuse plan." The location of the landfill, which has been inactive since 1972, was well known prior to the 2005 changes to the reuse plan as well as the 2007 FEIR proposal for a traffic circle on the landfill. Note that the Proposed Plan was mailed to the community prior to the completion and submittal of the FEIR.

B. Verbal Comments and Responses

This Section presents verbal comments recorded at the public hearing on June 19, 2007, with Navy responses. Note that the following comments are paraphrased. Refer to the Public Hearing Transcript in Appendix E.2 for a complete set of verbal comments recorded at the public hearing.

1. Comment from Terry Fancher, Executive Director, South Shore Tri-Town Development Corporation. Mr. Fancher read into the record the contents of the letter presented as Comment # 1 in Section III.A. above.

Navy Response: Please see Navy's Response to Comment # 1 in Section III.A.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

2. Mary Parsons, Rockland resident. Ms. Parsons expressed a concern about the proposed irrigation well down-gradient of WGL that is suggested in the developer's Draft Environmental Impact Report as being used as a future potable drinking water well. In addition, she felt that the developer's statement that they want the landfill removed is so that the groundwater could be used as a drinking water supply in the future. She noted that the developer did not support removal of two landfills located in the Rockland portion of the base and suggested that the developer could still remove the Small Landfill.

Navy Response: While the Navy, with input from EPA, concluded that a groundwater cleanup is not necessary, the PDI and long-term groundwater monitoring will be conducted to verify that concentrations of chemicals identified during the RI do not pose potential health risks. Please see the Navy Response to Comment #9, Item 2 in Section III.A for additional details. Navy's preferred alternative, WGL-3, will include an institutional control to prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent state drinking water standards or posing potential risks to human. As noted in the Proposed Plan, the Navy will ensure consistency between the land use controls required under the preferred remedy and the proposed reuse plan by imposing deed covenants on the WGL site that will run with the land and pass to the recipient of the property and subsequent owners. Such covenants ensure that land use controls are in place and are legally enforceable upon any recipient.

3. James Cunningham, Weymouth resident and RAB member: Mr. Cunningham expressed a concern about impacts of the capped landfill on French Stream and the nearby wetlands and suggested use of impervious barriers so the WGL materials would not leach out. He stated a preference for Navy to complete any remedial action as the Navy has a good record of pollution abatement and the developer's abatement systems are unknown. He also expressed a desire for an impervious barrier between the Rubble Disposal Area and Old Swamp River so materials from that capped landfill would not leach out.

Navy Response: The WGL FS only evaluated in-place capping alternatives with permeable materials (WGL-3 and WGL-4). Navy's preferred alternative, WGL-3, includes an engineered soil cap for the landfill, long-term monitoring, and institutional controls. The cap design details will be developed during the remedial design and implementation process to comply with engineering standards and federal and state requirements. The remedial design will provide specific engineering details for the cap, as well as removal of landfill materials from the wetlands. The long-term monitoring of surface water and groundwater, included as components of the selected remedy, are required by state landfill closure regulations to assess whether chemicals are leaching from the capped landfill. This post-closure monitoring data will be used to assess the adequacy, reliability and long-term effectiveness of the remedy.

Navy intends to complete the implementation of the preferred alternative. Following completion of the soil cap, Navy will perform long-term monitoring consistent with the plan developed during the remedial design phase.

The remedial action at the Rubble Disposal Area has been successfully completed. Inspections of the cover system are routinely performed and the long-term monitoring of groundwater, surface water, and sediment is underway. The monitoring results are being used to assess the adequacy, reliability and effectiveness of the remedy.

4. Ann Hilbert, Weymouth resident: Ms. Hilbert stated a preference for Navy to complete the remedial action as opposed to the developer.

Navy Response: As noted in Navy's response to Comment # 1 above, Navy intends to complete the implementation of the preferred alternative.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

5. Joanne Rakers, Weymouth resident: Ms. Rakers stated a preference for Navy to clean up the landfill totally if possible and questioned why the developer wants to remove the WGL materials when they did not support removal of the other two landfills on the base.

Navy Response: As noted in Navy's response to Comment # 1 above, Navy intends to complete the implementation of the preferred alternative.

6. Michael Smart, Weymouth Town Council, Weymouth resident: Mr. Smart stated that he disagrees with Navy's preferred alternative and thinks the best decision is to completely remove the landfill materials and take them off-site for disposal.

Navy Response: There are several factors that the Navy must consider in its assessment of alternatives under CERCLA and the NCP. The NCP evaluation criteria are grouped, in order of priority, into the following three categories: (1) threshold criteria, (2) primary balancing criteria, and (3) modifying criteria. The threshold criteria (overall protection of human health and the environment and compliance with ARARs) must be met in order for the alternatives to be eligible for selection. Once the threshold criteria are met, the primary balancing criteria (long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short term effectiveness, implementability, and cost) are used to evaluate, compare, and weigh the advantages and disadvantages of each alternative. Finally, the modifying criteria (state acceptance and community acceptance) are considered. Although the modifying criteria are important in the evaluation process, it does not necessarily outweigh the threshold and primary balancing criteria that have been met.

Navy's preferred alternative for WGL is consistent with CERCLA; EPA concurs with this alternative. The foremost consideration in Navy's remedy selection process is risk management, consistent with CERCLA and the NCP, which includes response actions that "...eliminate, reduce, or control risks to human health and the environment." (40 CFR 300.430(a)(1)). As described above, the WGL Feasibility Study considered a range of viable alternatives that achieve these risk management goals and are protective of human health and the environment. In addition, capping is an accepted presumptive remedy for landfills. Consistent with EPA guidance under CERCLA, the lowest cost alternative that will be protective of human health and the environment and meet the federal and state regulations was selected.

Navy will be responsible for the institutional controls and long term monitoring program that will be developed during the remedial design process. The details of the monitoring program will be developed with input from EPA and MADEP. Operation and maintenance, including inspections of the cap, will be performed by Navy or its contractors, and any needed repairs made.

7. Ann Hilbert, Weymouth resident: Ms. Hilbert stated that the developers don't want to take a bond out for people who live outside the perimeter of the base.

Navy Response: Navy is responsible for the environmental cleanup of the base and is not involved in the developer's plans for their redevelopment of the base.

8. Bill Cotter, Marshfield resident: Mr. Cotter indicated a preference to remove the soil, recycle it, and place it back on the site. He noted a concern that the WGL is near the transportation hub of the redevelopment project and is in close proximity to French Stream.

Navy Response: The suggested alternative of excavation, treatment, and replacement of the treated materials into the landfill, was not one of the six alternatives evaluated in the feasibility study. As described in the Response to Comment # 6 above, in place management, e.g. capping the landfill, is an accepted presumptive remedy, is consistent with CERCLA, and has the concurrence of EPA. Future reuse of the site is a factor to be considered in the evaluation of remedial alternatives, but does not directly dictate the selection of a remedy. As noted in the Proposed Plan, the developer needs to take the

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

environmental condition of the property, planned remedial activities, and resource constraints into consideration when developing and implementing the reuse plan.

The engineered cap will eliminate any routes of exposure to the landfill materials. The long-term monitoring of surface water and groundwater, included as components of the selected remedy, are required by state landfill closure regulations to assess whether chemicals are leaching from the capped landfill.

9. Ann Hilbert, Weymouth resident: Ms. Hilbert indicated her skepticism about the developer's reasons for their support for complete removal of WGL.

Navy Response: Navy's preferred alternative for WGL is consistent with CERCLA; EPA concurs with this alternative. Consistent with EPA guidance under CERCLA, the lowest cost alternative that will be protective of human health and the environment and meet the federal and state regulations was selected.

10. James Cunningham, Weymouth resident and RAB member: Mr. Cunningham indicated a desire for a guarantee that the materials in the landfill are not hazardous to people, animals, or plants so that after the landfill is capped there would be no impacts on the wetlands or people downstream. He suggested that the results of all the testing that has been completed be published along with the proposed remedy.

Navy Response: The WGL Remedial Investigation Report and Feasibility Study are available to the public at the Navy's Caretaker Site Office and also at the libraries in Weymouth, Abington, Rockland, and Hingham. The results of the remedial investigation indicated that the chemicals present in the soils of the landfill pose a risk to people, animals, and plants. For this reason, Navy developed alternatives, discussed in the Feasibility Study, to eliminate the exposures to people, animals and plants by capping the landfill, performing long-term monitoring, and implementing institutional controls. Following capping of the landfill, the long-term monitoring will assess the adequacy, reliability and long-term effectiveness of the remedy.

11. Bill Cotter, Marshfield resident: Mr. Cotter asked if there are restrictions on any development at WGL and if not, requested that a covenant be set up so there can not be development in the future.

Navy Response: Navy's preferred alternative does not preclude and is not inconsistent with some of the mixed uses included under the current zoning designation, such as public recreation and open space. As discussed in the Proposed Plan, land use controls will be prepared and implemented by Navy. The Navy will ensure consistency between the land use controls required under the preferred remedy and the proposed reuse plan by imposing deed covenants on the WGL site that will run with the land and pass to the recipient of the property and subsequent owners. Such covenants ensure that land use controls are in place and are legally enforceable upon any recipient. As such, even though the property where the WGL site is located is zoned for mixed use that includes residential, deed covenants which run with the land will prohibit residential use and disturbance of the cap.

12. Mary Parsons, Rockland resident: Ms. Parsons would like to see a fence around the landfill if it's capped since dirt bikes and quads now race around on the base.

Navy Response: As noted in the Proposed Plan, fencing and warning signs are optional components of the preferred alternative. Design component details will be provided in the remedial design documents for the WGL.

13. James Cunningham, Weymouth resident and RAB member: Mr. Cunningham concurred with Ms. Parsons that a fence would be desirable.

**RECORD OF DECISION
NAVAL AIR STATION SOUTH WEYMOUTH
PART 3: RESPONSIVENESS SUMMARY**

Navy Response: Please see Navy's Response to Comment #12.

14. Chuck Heshion, Rockland resident: Mr. Heshion stated that he does not feel that a cap is a fix but is a short-term solution; a plan should be in place for long-term monitoring at any capped landfill. He noted that he hadn't seen anything about overburden groundwater wells in the vicinity of WGL or groundwater flow direction. He also expressed a concern about French Stream since it has an impact on Rockland.

Navy Response: Navy's preferred alternative includes long-term monitoring. The details of the monitoring program will be consistent with federal and state regulations and developed with input from EPA and MADEP. Long-term monitoring will include groundwater and surface water monitoring; details will be developed as part of the remedial design effort. Additional overburden monitoring wells may be included to supplement the existing monitoring well network. The program will assess surface water quality in the wetlands around the landfill and French Stream. Groundwater quality and flow direction will be included in the program as well. Information about overburden groundwater and flow direction is presented in the WGL RI Report, which is available at the local information repositories.

15. Ann Hilbert, Weymouth resident: Ms. Hilbert indicated concerns about the LNR's performance at the Hunter Point Naval Shipyard in San Francisco. She wants the Navy to take care of WGL.

Navy Response: Navy intends to complete the implementation of the preferred alternative.

16. Joanne Rakers, Weymouth resident: Ms. Rakers stated her opinion that the developer wants to remove the WGL materials because that area is the only way to tie into the MWRA to get water to the base.

Navy Response: Please see Navy's Response to Comment # 7 and Comment # 15.

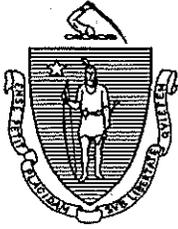
17. Mary Parsons, Rockland resident: Ms. Parsons asked whether Navy would be responsible for any future repairs to the cap or would Weymouth be responsible for WGL and Rockland be responsible for the two landfills in that town.

Navy Response: Consistent with landfill post-closure requirements, Navy is responsible for LTM as well as O&M activities at a closed, and capped, landfill. The need for any repairs will be assessed during the O&M inspections as well as during the 5-year reviews.

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

**APPENDIX A: MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
LETTER OF CONCURRENCE**

Refer to attached copy.



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

DEVAL L. PATRICK
Governor

IAN A. BOWLES
Secretary

TIMOTHY P. MURRAY
Lieutenant Governor

LAURIE BURT
Commissioner

September 28, 2007

James T. Owens, Director
Office of Site Remediation and Restoration
Region 1
U.S. Environmental Protection Agency
One Congress Street, Suite 1100 (HIO)
Boston, MA 02114-2023

Re: ROD Concurrence Letter
West Gate Landfill
Former South Weymouth NAS
MassDEP RTN 4-3002621

Dear Mr. Owens:

The Massachusetts Department of Environmental Protection (MassDEP) has reviewed the *Record of Decision for Operable Unit 1, West Gate Landfill, Naval Air Station South Weymouth*, dated September 2007. The Record of Decision (ROD) summarizes the results from the remedial investigation (RI) and feasibility study (FS), and provides the Navy's rationale for selecting a remedy consisting of a low-permeability cover system, long-term monitoring, and institutional controls. MassDEP concurs with the selected remedy.

As the remedial process moves forward to design, we would urge open dialogue among the stakeholders to evaluate appropriate future uses of the landfill, once capped, that provide some benefit to the local community while remaining protective of the constructed remedy.

If you have any questions or comments, please contact David Chaffin, Project Manager (617) 348-4005, or Anne Malewicz, Federal Facilities Section Chief (617) 292-5659.

Sincerely,

Laurie Burt
Commissioner

CC: D. Barney, USN-S. Weymouth
P. Marajh-Whittemore, USEPA
Executive Director, SSTTDC
RAB Members
J. Felix, MADEP-Boston
J. Naparstek, MADEP-Boston

Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices

APPENDIX B: REFERENCES

Argonne, 1988. Preliminary Assessment, NAS South Weymouth, MA. Argonne National Laboratories, 1988.

Baker Environmental, 1991. Site Investigation at Naval Air Station South Weymouth. Baker Project Number 16746-19. December.

Brown & Root Environmental, 1998. NAS South Weymouth. Phase I Remedial Investigation, South Weymouth, Massachusetts. Volumes I-IV. July.

ENSR, 2001. Consideration of Constructing a New Landfill, NAS South Weymouth, MA, May.

Environmental Protection Agency (EPA), 1988, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, EPA/540/G-89/004, October.

EPA, 1989. Risk Assessment Guidance for Superfund. Volume 1. Human Health Evaluation Manual (Part A). Interim Final. Office of Emergency and Remedial Response, Washington, D.C. EPA/540/1-89/002. December.

EPA, 1990. National Oil and Hazardous Substances Pollution Contingency Plan, Final Rule, 40 CFR Part 300, Federal Register 55(46):8718.

EPA, 1991. Conducting RI/FSs for CERCLA Municipal Landfill Sites, EPA/540/P-91/001.

EPA, 1991a. Risk Assessment Guidance for Superfund. Volume I. Human Health Evaluation Manual (Part B, Development of Risk-based Preliminary Remediation Goals). Interim. Office of Emergency and Remedial Response, Washington, D.C. Publication 9285.7-01C. December.

EPA, 1991b. Risk Assessment Guidance for Superfund. Volume I. Human Health Evaluation Manual (Part C, Risk Evaluation of Remedial Alternatives). Interim. Office of Emergency and Remedial Response, Washington, D.C. Publication 9285.7-01C. December.

EPA, 1991c. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03. Interim Final. Office of Emergency and Remedial Response, Toxics Integration Branch, Washington, D.C.

EPA, 1991d. "Water Quality Criteria Summary". Summary table published by U.S. EPA Health and Ecological Criteria Division, Washington, D.C. May 1, 1991.

EPA, 1992a. Supplemental Guidance to RAGS: Calculating the Concentration Term. OSWER Directive 9285.7-081. Office of Solid Waste and Emergency Response.

EPA, 1992b. Guidance for Data Usability in Risk Assessment (Part A). Office of Emergency and Remedial Response, Washington, D.C. Publication 9285.7-09A.

EPA, 1997a. Exposure Factors Handbook. Volumes I-III. Office of Health and Environmental Assessment, Washington, D.C. EPA/600-P-95/002Fa. August.

EPA, 1997b. Health Effects Assessment Summary Tables (HEAST). FY 1997 Update. Office of Solid Waste and Emergency Management. EPA/540/F-97-036. July.

Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices

EPA, 1999. A Guide to Preparing Superfund Proposed Plans, Records of Decision, and other Remedy Selection Decision Documents. Office of Solid Waste and Emergency Response. EPA/540/R-98/031. OSWER 9200.1-23P. July.

EPA, 2000. A Guide to Developing and Documenting Cost Estimates During the Feasibility Study, EPA-R-00-002.

EPA, 2000a. Integrated Risk Information System (IRIS). Environmental Criteria and Assessment Office. U.S. Environmental Protection Agency, Cincinnati, Ohio. [URL:[http\www.epa.gov/ngispgm3/iris](http://www.epa.gov/ngispgm3/iris)].

Masters, Gilbert M., 1991. Introduction to Environmental Engineering and Science, New Jersey: Prentice-Hall, Inc.

South Shore Tri Town Development Corporation, 2005. Zoning and Land Use By-Laws for the Naval Air Station South Weymouth. 5 May.

South Shore Tri Town Development Corporation, 2005. Reuse Plan for Naval Air Station South Weymouth. 5 May.

Tetra Tech, 1999. Phase II Remedial Investigation Work Plan, South Weymouth, Massachusetts. Volumes I-III. April.

Tetra Tech NUS, Inc., 2000. Basewide Groundwater Flow Assessment, Phase II Remedial Investigation, NAS South Weymouth, MA. December.

Tetra Tech NUS/ENSR, 2002. Phase II Remedial Investigation, West Gate Landfill, NAS South Weymouth, MA, April.

Tetra Tech NUS/ENSR, 2003. Feasibility Study, West Gate Landfill, NAS South Weymouth, MA, January.

Tetra Tech NUS, Inc., 2006. Site Management Plan, Revision 6.0, Naval Air Station South Weymouth, Weymouth, Massachusetts. October.

U.S. Navy, 2007. Proposed Plan for Operable Unit 1, West Gate Landfill, NAS South Weymouth, MA.

Viessman, Jr., W. and M. Hammer, 1993. Water Supply and Pollution Control, Fifth Edition, HarperCollins College Publishers.

Williams, J. R. and Tasker, G. D., 1974. Water Resources of the Coastal Drainage Basins of Southeastern Massachusetts, Weir River, Hingham, to Jones River, Kingston, USGS Hydrologic Investigations Atlas HA-504.

Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices

APPENDIX C: GLOSSARY

Background Level—Chemicals or concentrations of chemicals present in the environment due to naturally occurring geochemical processes and sources, or to human activities not related to specific point sources or site releases.

Benchmark—Concentration of a chemical considered to be protective of human health or the environment.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)—A federal law passed in 1980 and amended in 1986 by the Superfund Amendments and Reauthorization Act. The Act created a special tax that goes into a Trust Fund, commonly known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites. Navy compliance with CERCLA/Superfund Amendments and Reauthorization Act (see Installation Restoration Program definition) is funded by the Department of Defense under the Defense Environmental Restoration Act.

Chemical of Concern (COC)— Chemicals identified in the risk assessments as the primary drivers of unacceptable risks.

Chemical of Potential Concern (COPC)—A compound or element found at a site at concentrations above federal and state risk-screening levels and therefore is included in the risk assessment evaluations.

Excess Lifetime Cancer Risk Range—Upper bound probability of an individual developing cancer over a lifetime as a result of exposure to a particular level of a potential carcinogen. The predicted cancer risk level is compared against an acceptable range of 1×10^{-4} to 1×10^{-6} .

Feasibility Study (FS) — A description and engineering study of the potential cleanup alternatives for a site.

Groundwater—Groundwater is the water found beneath the earth's surface that fills pores and cracks between such materials as sand, soil, gravel, or rock.

Hazard Index—A measure of the potential for toxic (non-cancer related) effects from exposure to non-carcinogenic chemicals. A Hazard Index of 1 or less is considered an acceptable risk level by the U.S. Environmental Protection Agency.

Installation Restoration (IR) Program—A component of the Defense Environmental Restoration Act created under CERCLA regulations and funded by the Department of Defense. The purpose of the Program is to identify, assess, characterize, and clean up or control contamination from past hazardous waste disposal operation and hazardous material spills at military activities.

Institutional Control – Any legal or administrative barrier, such as an easement, restrictive covenant, or zoning ordinance, that prevents access or certain uses of land.

Monitoring Well—A well drilled at a specific location allowing groundwater to be sampled at selected depths to determine the direction of groundwater flow and the types and quantities of chemicals present in groundwater.

National Priorities List—U.S. Environmental Protection Agency's list of sites for priority cleanup under the Superfund program.

Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices

Operable Unit—Operable units are site management tools that define discrete steps toward comprehensive actions, based on geographical portions of a site, specific site problems, initial phases of action, or any set of actions performed over time or concurrently at different parts of the site.

Polycyclic Aromatic Hydrocarbons (PAHs)—Chemical compounds such as benzo(a)pyrene, naphthalene, anthracene, and phenanthrene, which are usually byproducts of incomplete combustion. PAHs can occur naturally (i.e. from forest fires) and as the consequence of human activities.

Polychlorinated Biphenyls (PCBs) — A chemical mixture commonly used in electrical transformers and other electrical components because they conduct heat well while being heat resistant and good electrical insulators. The sale and re-use of PCBs were banned in 1979.

Proposed Plan—A CERCLA document that summarizes the lead agency's (in this case, the Navy's) preferred cleanup remedy for a site and provides the public with information on how they can participate in the remedy selection process.

Record of Decision (ROD)—A legal, technical, and public document under CERCLA that explains the rationale and final cleanup decision for a site. It contains a summary of the public's involvement in the cleanup decision.

Remedial Action Objectives (RAOs)—RAOs are goals that are set to protect human health and the environment, and provide the basis to select cleanup methods.

Remedial Investigation (RI)—A step in the CERCLA process that is completed to gather sufficient information to support selection of a cleanup approach to a site. The RI involves site characterization or the collection of data and information necessary to characterize the nature and extent of contamination at a site. The RI also determines whether or not the contamination presents a significant risk to human health or the environment.

Responsiveness Summary—A CERCLA document containing the responses to the formal comments submitted by the public regarding the Proposed Plan. This summary is issued as a portion of the ROD.

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

APPENDIX D: ADMINISTRATIVE RECORD INDEX

| File No. | Vol. | Document No. | Document Type ^(a) | Document Title | Document Date | Document Author | Document Recipient | Document Location | Operable Unit |
|-------------------------------------------|------|--------------|------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------|-----------------------------|---------------------|----------------------------|
| 1.0 SITE ASSESSMENT | | | | | | | | | |
| 1.2 Preliminary Assessment | | | | | | | | | |
| 1.2 | | 1.2-1 | R | Preliminary Assessment, NAS South Weymouth, Massachusetts | 1988 | Argonne National Laboratory | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 1.3 Site Inspection/Investigation | | | | | | | | | |
| 1.3 | | 1.3-1 | R | Work Plan Site Investigation at Naval Air Station South Weymouth, Massachusetts | 3/90 | Baker Environmental Inc. | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 1.3 | | 1.3-2 | R | Site Investigation at Naval Air Station South Weymouth, Massachusetts | 12/91 | Baker Environmental Inc. | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 3.0 REMEDIAL INVESTIGATION | | | | | | | | | |
| 3.2 Sampling and Analysis Data | | | | | | | | | |
| 3.2 | | 3.2-1 | R | Data Validation Addenda Remedial Investigation South Weymouth, Massachusetts Addenda Volumes I, II, III, IV, V, and VI | 1/97 | Brown and Root Environmental (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 3.2 | | 3.2-2 | R | Final Summary Report of Background Data Summary Statistics for Naval Air Station South Weymouth, Massachusetts | 2/00 | Stone & Webster | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10 |
| 3.2 | | 3.2-3 | R | Supplement to Final Summary Report of Background Data Summary Statistics for NAS South Weymouth | 11/02 | Stone & Webster | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10 |
| 3.6 Remedial Investigation Reports | | | | | | | | | |
| 3.6 | | 3.6-1 | R | Phase I Remedial Investigation, Naval Air Station South Weymouth, Massachusetts Volumes I, II, III, and IV | 7/98 | Brown and Root Environmental (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 3.6 | | 3.6-2 | R | Turtle Investigation Report for CY 1999 | 4/00 | Tetra Tech NUS (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10 |
| 3.6 | | 3.6-4 | R | Basewide Groundwater Flow Assessment Phase II Remedial Investigation | 12/00 | Tetra Tech (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10 |
| 3.6 | | 3.6-8 | R | Turtle Investigation Report for CY 2000 | 4/01 | Tetra Tech NUS (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10 |

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

| File No. | Vol. | Document No. | Document Type ^(a) | Document Title | Document Date | Document Author | Document Recipient | Document Location | Operable Unit |
|---------------------------------------------------|------|--------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------------|-----------------------------|---------------------|--------------------------------|
| 3.6 Remedial Investigation Reports (cont.) | | | | | | | | | |
| 3.6 | | 3.6-12 | R | Potential Effects of Elevated pH Values on the Representativeness of Groundwater Samples, NAS South Weymouth (secondary document, supplement to Phase II RI) | 2/02 | Tetra Tech NUS (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10, 11 |
| 3.6 | | 3.6-18 | R | Phase II Remedial Investigation Report, West Gate Landfill, NAS South Weymouth, Weymouth, Massachusetts | 4/02 | Tetra Tech NUS (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1 |
| 3.7 Work Plans and Progress Reports | | | | | | | | | |
| 3.7 | | 3.7-1 | R | Final Remedial Investigation Work Plan, NAS Weymouth, Massachusetts | 7/95 | Brown and Root Environmental (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 3.7 | | 3.7-2 | R | Final Remedial Investigation Work Plan (Phase I) Field Sampling Plan, Quality Assurance Project Plan, Health and Safety Plan Volumes I and II | 11/28/95 | Brown and Root Environmental (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 3.7 | | 3.7-3 | L | Ecological Technical Memorandum Work Plan, NAS South Weymouth, Massachusetts | 7/98 | Brown and Root Environmental (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 3.7 | | 3.7-4 | R | Phase II Remedial Investigation Work Plan, NAS South Weymouth, Massachusetts (7 volumes including appendix) | 4/99 | Tetra Tech NUS (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 3.9 Health Assessments | | | | | | | | | |
| 3.9 | | 3.9-1 | R | Public Health Assessment for Naval Air Station South Weymouth, Massachusetts CERCLIS No. MA2170022022 | 3/98 | U.S. Department of Health and Human Services | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 3.9 | | 3.9-2 | R | Public Health Assessment for Naval Air Station South Weymouth, Massachusetts CERCLIS No. MA2170022022 | 9/99 | U.S. Department of Health and Human Services | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 3.9 | | 3.9-3 | R | Public Health Assessment for Naval Air Station South Weymouth, Massachusetts CERCLIS No. MA2170022022 | 8/30/01 | U.S. Department of Health and Human Services | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

| File No. | Vol. | Document No. | Document Type ^(a) | Document Title | Document Date | Document Author | Document Recipient | Document Location | Operable Unit |
|--------------------------------------------------------|------|--------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------|-----------------------------|---------------------|------------------------|
| 4.0 FEASIBILITY STUDY | | | | | | | | | |
| 4.2 Feasibility Study | | | | | | | | | |
| 4.2 | | 4.2-1 | R | Consideration of Constructing a New Landfill, NAS South Weymouth (secondary document, supplemental to Feasibility Study) | 5/01 | Tetra Tech NUS (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3 |
| 4.2 | | 4.2-3 | R | Feasibility Study, West Gate Landfill, Naval Air Station South Weymouth, Weymouth, Massachusetts | 1/03 | Tetra Tech NUS (ENSR) | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1 |
| 4.9 Proposed Plans for Selected Remedial Action | | | | | | | | | |
| 4.9 | | 4.9-4 | P | Proposed Plan, Operable Unit 1- West Gate Landfill, Naval Air Station South Weymouth, Weymouth, Massachusetts | 5/07 | U.S. Department of the Navy | Public | NAVFAC MID-ATLANTIC | 1 |
| 5.0 RECORD OF DECISION | | | | | | | | | |
| 5.3 Responsiveness Summaries | | | | | | | | | |
| 5.3 | | 5.3-11 | R | Transcript of the Public Hearing on the Proposed Plan for the West Gate Landfill (included as Appendix E.2 of the Record of Decision) | 6/19/07 | Public | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1 |
| 5.3 | | 5.3-12 | R | West Gate Landfill Responsiveness Summary (included as Part 3 of the Record of Decision) | 2007 | Tetra Tech NUS | Public | NAVFAC MID-ATLANTIC | 1 |
| 5.4 Record of Decision | | | | | | | | | |
| 5.4 | | 5.4-6 | R | Final Record of Decision Operable Unit 1 West Gate Landfill, Naval Air Station South Weymouth, Massachusetts | 2007 | Tetra Tech NUS | Public | NAVFAC MID-ATLANTIC | 1 |
| 10.0 ENFORCEMENT/NEGOTIATION | | | | | | | | | |
| 10.16 Federal Facility Agreements | | | | | | | | | |
| 10.16 | | 10.16-1 | L | Federal Facility Agreement for South Weymouth Naval Air Station National Priorities List Site | 4/00 | EPA | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 13.0 COMMUNITY RELATIONS | | | | | | | | | |
| 13.2 Community Relations Plan | | | | | | | | | |
| 13.2 | | 13.2-1 | R | Community Relations Plan Naval Air Station South Weymouth, Massachusetts | 7/98 | U.S. Department of the Navy | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

| File No. | Vol. | Document No. | Document Type ^(a) | Document Title | Document Date | Document Author | Document Recipient | Document Location | Operable Unit |
|---------------------------------------------|------|--------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------------|--------------------|---------------------|--------------------------------|
| 13.4 Public Meetings/Hearings | | | | | | | | | |
| 13.4 | | 13.4-1 | | Restoration Advisory Board Workshop Guidebook | 7/94 | EPA | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 13.5 | | 13.5-3 | | Environmental Update, NAS South Weymouth | 3/98 | North and South Rivers Watershed Association | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 13.5 | | 13.5-4 | | Groundwater Flow NAS South Weymouth, Massachusetts | 10/98 | Tetra Tech NUS (ENSR) | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 13.5 | | 13.5-6 | | Environmental Cleanup Activities NAS South Weymouth Fact Sheet | 4/00 | Tetra Tech NUS (ENSR) | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 13.5 | | 13.5-7 | | Arsenic Information from the Former Naval Air Station South Weymouth, Massachusetts Fact Sheet | 11/01 | Tetra Tech NUS (ENSR) | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 13.4 | | 13.4-6 | | Public Notice: Notification of Restoration Advisory Board Meetings (Monthly) | 1995-2004 | EA Engineering, Science, and Technology | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10, 11 |
| 13.4 | | 13.4-7 | | Restoration Advisory Board Meeting Minutes (Monthly) | 1995-2007 | U.S. Department of the Navy | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10, 11 |
| 13.4 | | 13.4-8 | | Public Notice: Availability of the Proposed Plan, and Notification of Public Meeting and Comment Period | 5/07 | Tetra Tech NUS | Public | NAVFAC MID-ATLANTIC | 1 |
| 13.5 Fact Sheets/Information Updates | | | | | | | | | |
| 13.5 | | 13.5-1 | | U.S. Navy Fact Sheet No. 1, NAS South Weymouth | 12/96 | Tetra Tech NUS (ENSR) | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 13.5 | | 13.5-2 | | The Former Naval Air Station South Weymouth | 2/98 | U.S. Department of the Navy | Public | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 13.6 Mailing List | | | | | | | | | |
| 13.6 | | 13.6-1 | | Community Relations Mailing List: State, Federal and Local Agencies (including Media and Public Libraries) | N/A | U.S. Department of the Navy | N/A | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10, 11 |
| 13.6 | | 13.6-2 | | Community Relations Mailing List: Other Parties (e.g., general public) – CONFIDENTIAL (due to potential Privacy Act violations) | N/A | U.S. Department of the Navy | N/A | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10, 11 |

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

| File No. | Vol. | Document No. | Document Type ^(a) | Document Title | Document Date | Document Author | Document Recipient | Document Location | Operable Unit |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------|------------------------------|-----------------------------------------------------------------------------------------|---------------|-----------------------------------------|-----------------------------|---------------------|--------------------------------|
| 17.0 SITE MANAGEMENT RECORDS | | | | | | | | | |
| 17.6 Site Management Plans and Reviews | | | | | | | | | |
| 17.6 | | 17.6-1 | R | Site Management Plan Naval Air Station South Weymouth, Massachusetts | 10/99 | EA Engineering, Science, and Technology | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 17.6 | | 17.6-2 | R | Site Management Plan Revision 1.0 Naval Air Station South Weymouth, Massachusetts | 10/00 | EA Engineering, Science, and Technology | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9 |
| 17.6 | | 17.6-3 | R | Site Management Plan Revision 2.0 Naval Air Station Weymouth, Massachusetts | 11/01 | EA Engineering, Science, and Technology | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10 |
| 17.6 | | 17.6-4 | R | Site Management Plan Revision 3.0 Naval Air Station South Weymouth, Massachusetts | 4/03 | EA Engineering, Science, and Technology | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10 |
| 17.6 | | 17.6-5 | R | Site Management Plan Revision 4.0 Naval Air Station South Weymouth, Massachusetts | 12/04 | EA Engineering, Science, and Technology | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10 |
| 17.6 | | 17.6-6 | R | Draft Site Management Plan Revision 5.0 Naval Air Station South Weymouth, Massachusetts | 8/05 | Tetra Tech NUS | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10, 11 |
| 17.6 | | 17.6-7 | R | Site Management Plan Revision 6.0 Naval Air Station South Weymouth, Massachusetts | 10/06 | Tetra Tech NUS | U.S. Department of the Navy | NAVFAC MID-ATLANTIC | 1, 2, 3, 4, 5, 7, 8, 9, 10, 11 |
| (a) R = Report; L = Letter; P = Proposed Plan. | | | | | | | | | |
| NOTES: NAVFAC MID-ATLANTIC = Naval Facilities Engineering Command Mid-Atlantic. EPA = (U.S.) Environmental Protection Agency. MADEP = Massachusetts Department of Environmental Protection. NAS = Naval Air Station. | | | | | | | | | |

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

**APPENDIX E.1: PUBLIC COMMENTS ON THE PROPOSED PLAN FOR THE
WEST GATE LANDFILL**

Comments on the Proposed Plan received during the public comment period are attached.

COMMENT SHEET – Proposed Plan for Operable Unit 1

Use this space to write your comments or to be added to the mailing list.

The Navy encourages your written comments on the Proposed Plan for Operable Unit 1 – West Gate Landfill, Naval Air Station South Weymouth, Weymouth, Massachusetts. You can use the form below to send written comments. If you have questions about how to comment, please call Brian Helland at (215) 897-4912. This form is provided for your convenience.

Please mail this form or additional sheets of written comments, postmarked no later than June 20, 2007, to the address shown below:

Mr. Brian Helland
Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112

Dear Mr. Brian Helland

It looks to me that you have done a thorough study of the problem. I would like to ask a couple of questions.

1. WGL-4, Would a flexible membrane liner trap usable gases to be utilized for sources of energy?

2 WGL-3. Farmers use limestone dust to sanitize soil. Would baking soda be feasible? It helps neutralize soil.

WGL-5 Just takes the problem somewhere else.

WGL-2 similar

Comment Submitted by:

Philip D Barber

Address:



Mr. Philip D. Barber
446 Pleasant St.
Weymouth, MA 02190-2639

COMMENT SHEET – Proposed Plan for Operable Unit 1

Use this space to write your comments or to be added to the mailing list.

The Navy encourages your written comments on the Proposed Plan for Operable Unit 1 – West Gate Landfill, Naval Air Station South Weymouth, Weymouth, Massachusetts. You can use the form below to send written comments. If you have questions about how to comment, please call Brian Helland at (215) 897-4912. This form is provided for your convenience.

Please mail this form or additional sheets of written comments, postmarked no later than June 20, 2007, to the address shown below:

Mr. Brian Helland
Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112

Any of these Remedial Alternatives other than WGL-5 (the complete removal of all debris from the site) is not acceptable. The Navy must be "responsible" for their contamination of this site.

Comment Submitted by:

Address:

Bruce W. Knapp
44 Blackhawk Rd S. Weymouth MA 01981-331-3387

COMMENT SHEET – Proposed Plan for Operable Unit 1

Use this space to write your comments or to be added to the mailing list.

The Navy encourages your written comments on the Proposed Plan for Operable Unit 1 – West Gate Landfill, Naval Air Station South Weymouth, Weymouth, Massachusetts. You can use the form below to send written comments. If you have questions about how to comment, please call Brian Helland at (215) 897-4912. This form is provided for your convenience.

Please mail this form or additional sheets of written comments, postmarked no later than ~~June 20, 2007~~, to the address shown below:

July 6, 2007

Mr. Brian Helland
Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112

I believe the safest alternative would be WGL 5; Remove and dispose of all WGL materials off site. The toxic chemicals and metals found in samples on the site such as polychlorinated biphenyls, dioxins, lead, arsenic, mercury, antimony and vanadium are just a few of a long list of toxic chemicals and metals found at the West Gate Landfill. The landfill had been used for approximately 30 years, from the 1940's through 1972, when there were no regulations meaning there are all types of toxic materials yet to be found. A prime example of this is when environmental studies were conducted by the Navy which found plastic buckets, metal drums and other containers. With a landfill 5 1/4 acres in size and on average 10 feet deep there are hundreds if not thousands of containers of dangerous chemicals such as insecticides, solvents, paint thinners and used motor oil that are deteriorating and leaking dangerous chemicals into the environment. The landfill is located in an environmentally sensitive area bordering a large wetland area and French stream, making the removal of any toxic material extremely important. Because of its location and the many toxic materials found there, the only way to guaranty the area is clean is by the removal of this dangerous and toxic waste -

Comment Submitted by:

Harvey Welch

- OFF SITE.

Address:

674 Pond St. Weymouth, MA 02190

From: Betsy White [mailto:blwhitey@verizon.net]
Sent: Tuesday, June 19, 2007 22:29
To: Helland, Brian J CIV NAVFAC Midlant
Subject: South Weymouth Naval Air Station--Truck It, Don't Cap It

Please do more to get rid of the contaminated soil than try to cover it up...there are too many communities where capping hasn't worked...My husband and I have seriously considered buying into the new development, but will not until/unless there is a better solution than capping the waste. I agree with the developer. Eliminate the problem, don't just put a band aid over it. Thank you.

Betsy White

South Shore Tri-Town Development Corporation

223 Shea Memorial Drive, South Weymouth, MA 02190

June 19, 2007

Mr. Brian Helland
Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112

Re: West Gate Landfill - Proposed Plan

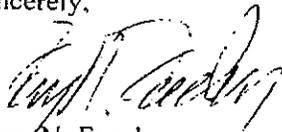
Dear Mr. Helland,

The South Shore Tri-Town Development Corporation takes this opportunity to reiterate and underscore its constant position regarding the remedial program for the former South Weymouth Naval Air Station. In particular, the Corporation maintains that excavation and off-site removal of the West Gate landfill be performed in order to meet the requirements of the Master Plan as approved by the communities of Abington, Rockland and Weymouth for the redevelopment of the site.

In line with the approved Master Plan, the first phase of the development project is underway and application has been made seeking transfer of the remaining parcels of the site from the U.S. Navy. The Economic Development Conveyance Application made to the U.S. Navy, by the Corporation, reiterates the position to remove the Westgate Landfill and provides funding to do so.

Thank you for your attention to this matter.

Sincerely,



Terry N. Fancher
Executive Director

Cc: Senator Kennedy
Senator Kerry
Congressman Delahunt
Representative Mariano
Board of Directors
Mr. David Barney, Navy CSO

Mr. Brian Helland, Navy Remedial Project Manager
Re: June 19, 2007 Public Comment Navy WGL Proposal

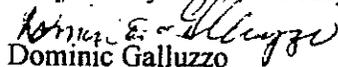
The Westgate Landfill area has been designated as a Superfund site for a reason. Given that the proposed re-use plan by LNR, supported by South Shore Town Development Corp. or any other names they have each designated themselves since 2003, is inconsistent with their previous capping positions regarding all other superfund sites on the former NAS. The re-use plan is a residential build out, the largest component of developed land is the dense housing (2855 homes).

In the case of the WGL, located in the center of the proponents village center SSTITDC has recited a position that clearly is self serving. It is very apparent that a capped, fenced and posted WGL located in the center of their Village would pose a public relations nightmare in the marketing of the proposed **non sustainable re-use plan**.

The concern is high lighted by the attached Conditional Approval given by the Solid Waste Division of the DEP of MA in February 2007, and the extension of the same given in June of 2007. **I have been unable to attain any on site supervisory documentation or test results of the sampled runway materials to indicate that the extension of the approval is appropriate. Who is watching the execution of the Conditional Approval? Attempts to gain that information include conversations and or emails with Messrs, David Ellis and Robert Johnson Southeast Regional Office Solid Waste Div. of MA DEP., Ms. Anne Malewicz, MA DEP, Mr. Rich Kleiman, Legal Council to LNR, Mr. Brian Olson, and Ms. Pam Harting-Barrett of MA EPA.**

I thank the Navy for a very deliberate effort to insure the safety of all elements pertaining to this large 1400 acre foot print, its environment, our water shed, our public health and the scrutiny of your mission; **to ensure a sustainable plan**. In the best interest of the Host Communities, the Region, and the Nation a wind energy component should be studied by the Navy, who better qualified to determine the presence of wind that would sustain an industrial wind farm? To date the SSTITDC has spun a position that there is no wind on the former base, when asked by the Town Council of Weymouth, (letter sent in early 2006) to erect an anemometer to collect a year long wind velocity record, SSTITDC flatly refused. Since then many adjoining south shore towns are applying for and considering the installation of wind turbines. The SSTITDC "no wind" position is too convoluted not to be re-examined by an impartial and qualified Navy whose historical past and present technical expertise would end the deception raised by the SSTITDC position on the wind issue, by insisting that a 100 turbine wind farm be an element of a re-use plan that could be considered a model of a sustainable plan repeated the length of the east coast.

Respectfully Submitted July 2, 2007,


Dominic Galluzzo

86 Candia St. Weymouth, MA 02189 A Concerned Citizen
c.c. David Barney, RAB Co-Chair
attachments

Dorick Corbo
40 Roberts Drive
So. Weymouth, MA 02190

6-20-87

Dear Sir,

I'd like to comment
on your suggestion to
construct a soil cover
over contaminated land
at the West Gate
landfill on the South
Weymouth Air Station.

Covering the soil,
in the long run, would
be more expensive.
Without question, the
residents, wildlife, water
and air would be
affected and then the
cost would escalate.

If this procedure is
followed, let me
out of Weymouth.

Sincerely

Howick & Co.

From: allen [mailto:techven@verizon.net]
Sent: Wednesday, June 20, 2007 7:53
To: Helland, Brian J CIV NAVFAC Midlant
Subject: West Gate LF, WNAS

A standard cap on the West Gate Landfill at Weymouth Naval Air Station would work.

Two downsides: 1. 30-year post-closure monitoring is required per state solid waste regulations; and 2. landfills arent the best structural material for putting roads on, as is the plan. Reconfiguring the road and/or landfill footprint would solve that problem.

If LNR wants the landfill removed (which of course would solve the closure problem once and for all), then they should pay the difference between the standard cap, and the much more expensive dig-and-haul costs. They knew what was there when they made the deal.

regards,

Allen Hemberger

Allen & Cindy Hemberger
PO Box 2318
30 Holmes Road
Manomet, MA 02345
508 224 - 0872



TOWN OF ROCKLAND

Board of Selectmen

Town Hall
242 Union Street
Rockland, Massachusetts 02370

Chairman

Mary A. Parsor
Vice Chairman
Louis U. Valanzo

Selectmen

Lawrence J. Chaffe
James F. Simpson
Michael E. Zupkofska

Telephone: 781-871-1874

Fax: 781-871-0386

Town Administrator:

Bradley A. Plante

June 30, 2007

Mr. Brian Helland
Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112

Dear Mr. Helland

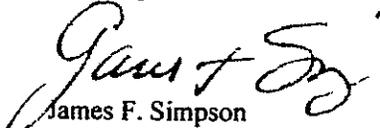
I'm writing to voice my personnel opinion concerning the clean up at the West Gate Landfill at the Naval Air Station – South Weymouth, Massachusetts.

The following is my concerns:

1. I vote for the Alternative WGL-5 plan and would prefer that the Navy manage the site clean up if they do not perform the work themselves.
2. I'm concerned with other waste management sites also on the property and need assurance that they will be fixed in the best format for our residents.
3. I'm concerned with the present state of VOC coming into Rockland via French's Stream?
4. What was the VOC during the active life of the waste area? What are the long term effects?
5. I'm concerned if cancer or other problems occur a higher percentage in Rockland than other areas
6. If other methods are used to cap the waste area concerns about the potential seepage into French's Stream of active VOC's.

Thank you for taking the time to review my concerns.

Sincerely;


James F. Simpson
Selectmen of Rockland

*Town of Weymouth
Massachusetts*

David M. Madden
Mayor
75 Middle Street
Weymouth, MA 02189

Office: 781.340.5012
Fax: 781.335.8184
TTY: 781.331.5124



www.weymouth.ma.us

July 3, 2007

Mr. Brian Helland
Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112

RE: West Gate Landfill, Naval Air Station South Weymouth, Proposed Plan

Dear Mr. Helland:

After review of the Proposed Plan for the West Gate Landfill (Operable Unit 1), and with the understanding that the Navy has selected alternative WGL-3 as their preferred alternative, I offer the following comments:

- Capping of municipal landfills is common practice; however the location of this particular landfill is crucial in the future development of the former Air Base. I have consistently advocated that the clean up of the West Gate Landfill be consistent with the Reuse Plan approved by Weymouth, Rockland and Abington. Currently the reuse plan shows a roadway on part of the site. WGL-3 includes restrictions on construction on top of the finished cover. Capping should only be selected if it is determined during your Pre-Design Investigation (PDI) that the site will support a road way (structurally and in compliance with all state and federal regulations).
- With alternative WGL-3, institutional controls and monitoring of the surface and groundwater at the site will need to be conducted indefinitely. The Navy must be responsible for these items; the communities should not at any time bear the burden.
- Future monitoring of the contaminants (PCBs, PAHs, dioxins, and metals) left under the cap must be conducted within a timeline that will ensure detection prior to any health or environmental risk

- Should the cap fail, the Navy must be responsible for returning and making timely repairs.
- Fencing or signage should not be a part of the plan. The cap should be engineered and constructed to withstand future use.

Respectfully,

A handwritten signature in black ink that reads "David M. Madden". The signature is written in a cursive style with a large initial "D".

David M. Madden
Mayor

From: Swabeeone@aol.com [mailto:Swabeeone@aol.com]
Sent: Friday, July 06, 2007 10:32
To: Helland, Brian J CIV NAVFAC Midlant
Subject: Comments on WGL Proposed Plan SWNAS

Mr. Brian Helland
July 6, 2007

Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA. 19112

Re: Proposed Plan
Operable Unit - West Gate Landfill
Naval Air Station South Weymouth
Weymouth, Massachusetts

Dear Mr. Helland,

Please accept these as my comments to the Proposed Plan Operable Unit - West Gate Landfill Naval Air Station South Weymouth, Massachusetts.

Very little effort has been made on my part for these comments. Community acceptance of the Proposed Plan is a step in the clean-up process that the Navy has historically shown to totally ignore on the SWNAS. But for what its worth,

The Navy should Remove and Dispose of all WGL materials off-site.

Generally, capped toxic landfills are away from residential housing, where kids would not likely play in or around on a daily basis. The WGL is in the core of the Village Center Plan, literally in the backyards of 2855 units of housing. This is a no-brainer. Please remove and Dispose of all WGL materials off-site and do not put any future children living at Southfield at risk.

The cost of removing the West Gate appears highly exaggerated.

The cost of capping the West Gate appears to be minimized.

In the long run, the cost of removing the WGL now will be more beneficial to the taxpayer and will guarantee there will be no ill health to the children of Southfield caused by exposure to this landfill.

Sincerely,

Mike Bromberg

373 Forest Street

Rockland, Ma. 02370

From: DCatbird37@aol.com [mailto:DCatbird37@aol.com]
Sent: Friday, July 06, 2007 15:30
To: Helland, Brian J CIV NAVFAC Midlant
Subject: Proposed Plan Capping of Westgate Landfill @ former SWNAS public comment

To: Brian Helland, U.S. Navy Remedial Project Manager,
South Weymouth Naval Air Station(SWNAS) Base
Realignment And Closure(BRAC)

From: David Wilmot, Abington Massachusetts resident & co-founder, research director of

AWARES (Abington, Rockland And Rockland
Environmental Studies)

Re:
Remediation of

Public Comment for Proposed Capping

WestGate Landfill CERCLA designated SuperFund
Site.

Sir,

I wish to thank the Navy for extending the Public Comment Period through July 6,2007 to allow myself and others the opportunity to weigh in on this most grave error in judgement on the Navy's proposed capping remediation of the highly contaminated WestGate Landfill site.

Our communities surrounding SWNAS have for decades served the Navy as hosts.

The Navy now proposes to reward us and other downstream communities, by leaving the most toxic of the 11 designated base SuperFund sites in place abutting Frenches Stream and adjacent wetlands, in total disregard of our, our children's, and our future children's, health.

Just today the Boston Globe reports that "statewide Autism rates have nearly doubled in the past five years. I have no doubt that a stunning rate occurrence would be in the proximity of toxic waste sites, industrial sites and current and former airport runways in Massachusetts, and nationwide. There is a small street abutting SWNAS where six of the eight homes on the street, at one time housed autistic children. I don't believe in such coincidences.

How does the Navy, or any factions of our government find it morally responsible to ignore the growing reams of evidence linking the exploding incidences of chronic health problems to chemical exposure?

These are truly dark times for our floundering democracy. Those of us living in blue collar neighborhoods like mine, urban neighborhoods, rural neighborhoods or Native American neighborhoods in proximity to current or former military facilities, are taking on a great incidence of environmentally-triggered diseases, in most cases, without their knowledge. There is no "Justice for ALL" in this country. The Department of Defense has a stranglehold on America's Public Health and Environmental Protection initiatives. This is most especially true of Americans not fortunate enough to live in the "best" neighborhoods.

I've grown ashamed of being under this current Administrations rule. Could our leadership be any more short-sighted in terms of protecting America's Best Interests? I fail to see how.

Example of Gross Short-sightedness : Proposed Capping of the WestGate Landfill CERCLA (SuperFund designated) Site.

Frenches Stream is a known headwaters of the North River Watershed. This is an important watershed resource for all of Southeastern Massachusetts. This is especially true to water-starved towns like the one I live in.

Recent efforts to get a copy of the Geochemical Stream Assessment have been unsuccessful, but I do know firsthand the following:

Close Examination of Frenches Stream as it exits the former base would prove it to be lifeless.

I fail to see how the Navy and involved Federal and State regulators can award a "No Ecological Risk" assessment to a Basewide Watershed Study where in Frenches Stream downstream of the WestGate Landfill, no fauna exists to access.

As the stream enters the base from Thompson's Pond in Abington, it is alive with the fish, frog and macroinvertebrate creatures representative of a healthy benthic animal community.

When leaving SWNAS downstream of the WestGate Landfill, the stream is devoid of life, a metal-choked, orange flocculent stained stew of military released toxins, flowing through our communities, and for decades, depositing contaminated sludge in the wetlands that are contained within the Frenches Stream floodplain.

The Navy finds no necessity thus far in doing any testing for contaminants in adjacent base property wetlands prior to closing this landfill, or the responsible testing that should be mandated in all adjacent wetlands outside the base fence. This is irresponsible towards protecting the Public Health of former host communities. EPA and USGS testing conducted during the Old Swamp River Investigation proved that migration of airbase-released contaminants pool in adjacent wetlands.

The Navy continues to cling to the already dis-proven statement that "contamination has not migrated off base property". Statements such as this are completely irresponsible! How does the Navy justify this lack of responsible oversight?

The Navy finds no necessity in finding out what became of the disposal of 30+ years of toxic coal-burning power plant coal ash and flyash. If you ask many former sailors formerly stationed at the base how things were disposed of they tell me "we just dumped it in the river" or "we dumped it out in the woods" or "in the swamp". The Navy is now assuming their only toxic legacy is in a set number(11) of denoted Superfund sites such as the WestGate Landfill. Even on these known highly contaminated sites, we are supposed to approve of their lowball method of cleanup. How does the Navy justify the lack of complete examination of the property being returned to the private sector?

Our children, and some of us somewhat older people, play in these streams and swamps! The Navy is grossly irresponsible in proposing this toxic landfill stay in place atop wetlands that without complete removal has the potential of endangering so many!

How does the Navy explain this gross oversight in BRAC process?

The Department of Defense and controlling Federal and State regulator Leadership downplay the known need for adaptation of precautionary principles in addressing toxin cleanup.

It's true that adverse health effects from toxic exposures may take decades to manifest themselves in tangible diseases, but with all the currently emerging science linking chemicals and chemical mixtures to adverse, chronic health outcomes, it's long past time that the United States Navy and the Federal Department of Defense(DOD) spend the money required to DEFEND the public health of former host communities, and those others downstream.

As it is has been with Global Warming, our government lags behind the rest of the world in addressing the need for toxic substance remediation. The wastes that now sit atop the SouthShore's water supply, should be moved to a National Depository under a dry desert state, or perhaps in the future on the Moon or Mars. The current military-industrial complex should be looking beyond their current financial dictates towards the future. Most financial powers in place prohibit rededication of any part of their amassing wealth to address the serious changes necessary to sustain life on this planet.

The Navy and DOD need to rededicate a like portion of their massive budgets towards protecting the public health of the Americans they are sworn to protect.

This country is in dire need of change. This BRAC process ongoing on the former SWNAS is in dire need of change. All across this country former military properties, through the use of irresponsible "Covenant Deferral Requests" and "Early Transfers" are being passed into the eager hands of waiting developers where Superfund mandated cleanups are being entrusted to companies driven to maximize their profit margins.

Former host communities citizens in most cases unknowingly suffer increased health burden.

The National Health System suffers, as we live longer, yet sicker lives.

Our National priorities are grossly irresponsible to future Americans.

Because in most cases our people are unaware of the risks you are saddling them with, does not mean you are without moral responsibilities to return the former military land and waterways in a state of health to the best of your abilities. But, truth and justice here are continually overlooked to force political and financial agendas, in lieu of moral responsibilities!

Is the Navy aware of the preponderance of autoimmune, among other, diseases in our neighborhoods?

Why did the Navy insist on withholding health information of former military personnel, when the Massachusetts Department of Public Health(MDPH) requested information for a study to establish incidence of autoimmune disease in proximity to SWNAS?

This irresponsible lack of cooperation, completely invalidates the results of years of work, and facilitates the waste of tax payers dollars. Does the Navy hide behind the Privacy Act as reason for their noncompliance? Given the fact that the MDPH had no interest in publishing any personal information, how is this excuse in any way valid?

As Mr. Gore points out boldly in the title of his latest book, our democracy is suffering a great "Assault on Reason". Eight years of my life trying to bring one man's well intentioned Reason to this SWNAS BRAC process is stonewalled at every turn by politics and money! Sound Reason is disregarded as so much bothersome rubbish. This is not how democracy is supposed to operate. I'm sure Mr. Gore would agree.

How does the Navy explain their decision to stonewall the MDPH study?

With diseases like Multiple Sclerosis (MS), Lou Gehrig Disease (ALS), Lupus, Autism, and many already proven environmentally triggered Cancers exploding in incidence across the country, in many documented cases in proximity to National Priority Listed SuperFund sites like SWNAS, how is the Navy able to reason that saving 30 million leaving this toxic landfill in place located in wetlands to perpetually release buried contaminants into the groundwater and surface wetlands, is the prudent, responsible way to remediate this situation? I would appreciate a detailed analysis of your decision, specifically addressing how Public Health was factored in.

I tried what I could to involve local health boards and in Abington the Town Manager and Selectmen in this BRAC process, to no avail. Local government is afraid of lowering the real estate market, and it seems local health boards are unprepared to look much beyond dumpster placement and smoking restrictions in local pubs. Why has the Navy made no stronger effort to engage local governing boards with the Restoration Advisory Board meetings or the BRAC process at SWNAS?

A very recent study by the Harvard School of Public Health reports that Chronic Illnesses in American Children have nearly quadrupled in the past three decades.

Some of this is surely due to more sedentary lifestyle, lack of exercise and diet choices, but those things do little to explain the great rise in birth defects, learning disabilities and autism.

Why have teenagers and 20-some-things, only in recent years been diagnosed with Multiple Sclerosis? Their numbers are growing around here.

Why has the DOD only recently given the Veterans Affairs Bureau the right to classify MS and ALS disability claims as "Service Related Disability"?

It has been proven in the laboratory that Military JP-8 Jet Fuel is extremely toxic to the immune systems of rats. Might the use of JP-8 Jet Fuel at SWNAS help explain the high incidence of Autoimmune and other diseases in my neighborhood? All efforts to orchestrate a combining of existing MDPH geographically-tagged Disease Data, with the existing Geographical Navy Database in use at SWNAS, already containing the geochemical and hydrogeographical data collected by the Navy and regulators. This existing data could easily be augmented with geographical placement of streams, runways, taxiways, warm-up pads and known spills and fuel jettison areas to provide a geographical look at former military exercises and possible effects on public health.

There is the possibility we stand to learn things of global importance here! And yet, I'm fought every step of the way.

How can our sworn protectors validate their apparent fear of the truth? Please comment.

Given the DOD's apparently growing knowledge of military released toxic substances adverse effects on human health, how can the Navy justify prioritizing financial concern over people's health?

The Navy is not the only culprit in this moral injustice.

The Washington decision makers atop the Federal Environmental Protection Agency(EPA) also shares in blessing this moral injustice taking place here and now.

Not the good people involved here on the ground level, but the decision makers in Washington who give them their marching orders.

The EPA made the decision that our suburban communities would be aptly served by designating cleanup levels to adhere to "Urban" level remediation standards. I would venture that there are few living in our communities who would consider themselves living in a city. I would also venture to say that more well-to-do towns situated equidistant or less from the city, say Hingham or Milton, would have the political power and legal wherewithal to fight this unjust "Urban" tag from being affixed.

Knowing firsthand how heated the remedial discussions between the Navy and the regulators , both EPA and State Department of Environmental Protection(DEP) often got, I wonder whether this "Urban" designation affixed to our suburban communities, was in any way the result of debate with the Navy's position on expected cleanup levels and costs?

I would appreciate the Navy commenting on this.

I also hold the EPA responsible for establishing Background Levels for comparative analysis of tainted sites vs. "naturally occurring" levels of mediums from samples of soils, waters and sediments collected directly on the base. Subjected to 50 years of military aviation exercises, I will never agree that any part of the base should carry a tag of "naturally occurring". Again, I would ask the Navy if their position on costs played a role in establishing of "Background Levels" establishment?

I know that the DOD insists that the "Lead Agent" in BRAC processes is an appointee from the military. Does the "Lead Agent" carry enough power to dictate all remediation parameters and protocol? Please illuminate the power wielded by the appointed "Lead Agent" in a "Memorandum Of Agreement(MOA)" during a BRAC military environmental remediation? I question whether this "Lead Agent" designation gives a crippling disadvantage to the agencies responsible for protecting the environment and public health.

The federal EPA is likewise responsible for keeping the cleanup levels of individual chemicals, metals and other toxic substances, updated to the evolving findings of sound science.

Environmental Protection is by definition a proactive precautionary function. The EPA announced five years ago that the model used to calculate each substance minimum cleanup level(MCL) was flawed, as it had been devised using an Average 160-180 pound man as a constant in it's calculation of chemical health risk. The EPA further stated that children would be in many cases at least ten times as susceptible to chemical assault from standardized model in use. Those EPA MCL's have yet to be enforced. I have to assume the political climate and the DOD's position in it, has thus far held up the responsible update of parameters. Is the Navy sworn to uphold MCL's as devised by the EPA?

How can Neurotoxic levels of Manganese, as well as other metals, for instance Hexavalent Chromium, be allowed to flow out of SWNAS with the complete blessings of the EPA? As one of the many folks around here suffering from a neurological disease, I would once again ask for comment from both the Navy and EPA? If you need to kick that question upstairs, feel free, but for once please give me a reasonable response to my question.

Given the inevitable "no apparent health issues" rubber stamp that the federal Agency for Toxic Substances and Disease Registry(ATSDR) constantly bestows on CERCLA mandated BRAC Public Health Assessments, I would be dumbfounded to find out that this agency was not fully controlled by the DOD. Please supply ATSDR's final assessment of the WestGate Landfill.I am assuming of course that they had some input and final assessment prepared before the Navy decided on a Final Proposal. Please share what if any involvement ATSDR was afforded in this finalization.

I'd also be very interested in learning how ATSDR finds it in any way responsible to not release the results(albeit partial,with the Navy's previously cited lack of information release) of the MDPH MS-ALS Incidence Study they are holding in "necessary peer review". I myself was instrumental in getting that study off the ground here, and I resent what I can only assume is politically mandated foot dragging, in presenting timely results, while development plans and efforts proceed without benefit of collected data.

All these issues bring questions to the argument of whether the DOD and it's BRAC process, holds responsible public health remediation in a perpetual stranglehold, away from basic human rights moral responsibilities. I would like to ascertain in detail how the Navy used the multi-faceted Final Remediation Derivation technique to settle on their selected method? I need to be shown clearly that cost alone wasn't the only factor in the derivation.

After eight plus years of intense involvement in this BRAC process at SWNAS, I can't help feeling like this much touted "Public Process", Is a great waste of the Public's time. Even our most reasonable well-researched opinions and findings are perpetually ignored or disregarded.

The WestGate Landfill given all I've learned about it, was used as a catchall for decades of military waste disposal. Given the little regard for the environment practiced in those decades of use, a toxic legacy should be deemed by thinking, responsible authorities,as warranting complete removal from atop a wetland capable of perpetually distributing leeching toxins to an unsuspecting populace with children.

I ask the Navy in all sincerity, to reconsider the alternative of total removal. An already well-recognized floundering national health care system, can ill afford greater future increases of chronic disease occurrences. It is time for the factions of the Department of Defense to use a greater and responsible portion of their allotted resources to Defend the Public Health and protect what should be the inalienable rights of All Americans.

David Wilmot
10 Arch St.
Abington, Massachusetts 02351
(781) 878-4110

Anne Hilbert
45 Doris Drive
North Weymouth, Mass

Mr. Brian Helland
Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, Pa. 19112

PROPOSED PLAN AT SOUTH WEYMOUTH NAVAL AIR STATION

As a resident of Weymouth I am concerned about this re-development, and the contaminants in the soil, along with the eleven superfund sites that we know off.

This land has been vacant for many years, and has been previously stated has eleven superfund sites. Although you assured us that everything is all right to go ahead with this development, we cannot trust the developer (LNR) they have a long track record.

When this company will not take out a bond on surrounding neighborhoods this speaks volumes.

Earlier on in the process this company was satisfied with capping the land. Now that they are going to supply the water to this development they want the soil removed on one of their sites. This only tells me they want to put their drinking water supply at this location. I shiver to even think that this will happen.

This is a company that has been less than forthcoming during the whole process. What is to stop them from now if this land is turned over?

Anne Hilbert
Fitzzy63@comcast.net

Watershed Action Alliance



110 Winslow Cemetery Rd, Marshfield, MA 02050 phone: 781-837-0982

jacowie@aol.com watershedaction.org

July 6, 2007

Brain Helland
Remedial Project Manager
BRAC Program Management Office, NE
4911 South Brad Street
Philadelphia, PA 19112

Dear Mr. Helland:

I am writing on behalf of the Watershed Action Alliance of Southeastern Massachusetts (WAA), a coalition of watershed associations committed to protecting and restoring the watersheds of Southeastern Massachusetts through strategic collaboration and grassroots efforts. WAA primarily focuses on the restoration of aquatic habitat and natural hydrology, the efficient and sustainable use of our water resources, and smart growth and ecologically sustainable public policy.

As one of the Commonwealth's premier "smart-growth" projects, the redevelopment of the South Weymouth Naval Air Station Base presents a unique opportunity to restore the natural hydrology, protect riverine habitat, and ensure sustainable water use on 1500 acres that will soon be home to 2,855 households and up to 2 million square feet of commercial businesses/industry. As a project that has 33 active clean-up sites, the close coordination between clean-up and reuse is paramount to the success of the redevelopment. It is with this lens that we voice our concerns regarding the preferred solution to cap the West Gate Landfill and recommend that the Navy choose instead WGL-5, removal and disposal of all WGL materials off-site.

Aquifer Use

The preferred remedy includes an institutional control that restricts the use of groundwater beneath the site. Although, the South Shore Tri-Town Development Corporation has indicated in the recent past that the use of the aquifer may not be feasible, they now indicate that the aquifer will be utilized in the short-term for irrigation (until the on-site WWTP is producing recycled water). However, the FEIR indicates that the water supply will be phased with .65 mgd of the 1.4 mgd build out estimate being supplied by MWRA. Based on the information presented in the FEIR, it appears that the long-term water supply source for the project is not yet defined, and as a result continual questions

about the aquifer use remain relevant and should be answered before moving forward with a resolution. If any possibility exists that the on-site well will be used as potable water source (including irrigation uses for which recycled water is not permitted), then we recommend the Navy moves forward with alternative WGL-5 and dispose all materials off-site.

Uncertainty in Ground Water and Sediment Characterization

We are concerned that EPA's review of the Responsive Investigation and Feasibility study (RI/FS) identified significant uncertainty with respect to the "adequacy of waste/contamination delineation in the wetland areas adjacent to the southern perimeter of the landfill. Similarly, since deep ground water conditions are not sufficiently understood in the down-gradient areas, generally south of the landfill... and in deeper aquifer units... additional monitoring well control will be needed" (EPA letter, 9/9/2006).

This lack of certainty is of concern, since the Navy concludes that groundwater clean-up is not warranted because arsenic and dibenz(a,h)anthracene were found in only one groundwater sample. More sampling of the deep groundwater aquifer and the wetlands is needed to create an informed determination of human health risk associated with the landfill. We also believe the detection levels of contaminants found in groundwater warrants a more aggressive clean-up plan. A few of our concerns follow:

- The detection level for arsenic (4.6 ug/l equals 4.66 ppm) is dangerously close to the Natural Academy of Science approximate total cancer health risk of 1 in 1,000 when 2 liters of tap water are consumed daily with 5 ppm of arsenic.
- 1,4-dioxane is generally not biodegradable and is persistent in groundwater. Little scientific data is available on the long-term effects of 1, 4 dioxane on human health, and EPA has listed it as a probable human carcinogen. The EPA has not yet established a federal drinking water standard or maximum contaminant level for 1,4 dioxane.
- Chromium is listed by the Department of Health and Human Services as a carcinogen and is known to cause lung cancer, stomach ulcers, and kidney and liver damage. It attaches to soil and eventually enters groundwater. Although the detection level (71 ug/L) is below the EPA drinking water standard of 100 ug/L, we believe the removal of contaminated soil is warranted.

Institutional Controls Conflicts with Redevelopment Plan

The institutional control for the capping of the landfill precludes the use of digging, yet the preferred parkway alternative crosses a portion of the WGL (FEIR 3-15). This apparent conflict needs to be resolved. In general, the reuse of this area as a village center seems at odds with deeded land-use restrictions associated with a capped resolution. We support South Shore Tri-Town Development Corporation (SSTDC)

statement of intent to remove the contaminated material and urge the Navy and SSTTDC to take the needed steps towards this resolution.

Monitoring

The plan calls for a review of site conditions every fifth year for the alternatives where disposal materials stay at their original location. We recommend that monitoring of groundwater and surface water be performed on an annual basis for 10 years following complete removal (WGL-5) to ensure success of the resolution. Although removal may be more costly in the short-term, the cost of long-term monitoring, maintenance of the cap, and enforcement of institutional controls are avoided. We recommend that SSTTDC hire an independent Licensed Site Professional to conduct the ten year monitoring and be accessible to the public for data interpretation and education regarding all site-related clean-up issues. Also, we recommend that French's stream sediment and floc are included in the proposed ten year monitoring plan for the WGL.

Additional Restored Wetlands

The Watershed Action Alliance supports the restoration and re-establishment of wetlands associated with the removal of the disposal material offsite. This restoration will help mitigate the loss of 4,620 s.f. of wetlands caused by the redevelopment.

Summary of Recommendations

The Watershed Action Alliance recommends the Navy removes all contaminated materials (Alternative WGL-5) for the following reasons.

- 1) The long-term water supply source for the project has not been determined, leaving the possibility that the near-by on site-well will be used as a potable water source.
- 2) More sampling of the deep groundwater aquifer and the wetlands is needed to make an informed determination of human health risk associated with landfill contaminants. The detection levels of measured groundwater contaminants warrant a more aggressive clean-up plan.
- 3) The institutional controls of the capped alternative conflict with village center reuse plans. We support South Shore Tri-Town Development Corporation (SSTTDC) statement of intent to remove the contaminated material and urge the Navy and SSTTDC to take the needed steps towards this resolution.
- 4) We recommend that monitoring of groundwater and surface water be performed on an annual basis for 10 years following complete removal to ensure success of the resolution. Although removal may be more costly in the short-term, the cost of long-term monitoring, maintenance of the cap, and enforcement of institutional controls are avoided. We recommend that SSTTDC hire an independent Licensed Site Professional to conduct the ten year monitoring and be accessible to the public for data interpretation

and education regarding all site-related clean-up issues. Also, we recommend that sediment and floc are included in the proposed ten year monitoring plan for the WGL.

I thank you for the opportunity to comment, and please contact me if you have any questions or would like to discuss these comments in further detail.

Sincerely,

Jill Cowie, Coordinator
Watershed Action Alliance of SEMA

Members signing:

Jones River Watershed Association
Weir River Watershed Association
North and South Rivers Watershed Association
Taunton River Watershed Association
Neponset River Watershed Association
Fore River Watershed Association



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF TRANSPORTATION
MASSACHUSETTS HIGHWAY DEPARTMENT

EOT

DEVAL L. PATRICK
GOVERNOR

TIMOTHY P. MURRAY
LIEUTENANT GOVERNOR

BERNARD COHEN
SECRETARY

LUISA PAIEWONSKY
COMMISSIONER

July 20, 2007

Mr. Brian Helland
Navy Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112

RE: Proposed Plan: Operable Unit 1 – West Gate Landfill
Naval Air Station, Weymouth Massachusetts

Dear Mr. Helland:

Enclosed for your consideration are comments from MassHighway Environmental Services' EMS and Sustainability Unit concerned the proposed plan for cleanup of the West Gate Landfill.

If you have any questions regarding this matter, please do not hesitate to contact me at 617-973-7529 or Kevin.Walsh@mhd.state.ma.us.

Sincerely,

Kevin M. Walsh
Acting Director
Environmental Services

Cc: Mr. Dave Barney, SW Caretaker Site Office
Ms. Patty Marajh-Whittemore, US EPA
Mr. Dave Chaffin, MA DEP
Mr. Terry Fancher, SSTTDC
Mr. Rich Kleiman, LNR
Mr. David Mohler, EOT
Ms. Diane Madden, MassHighway



THE COMMONWEALTH OF MASSACHUSETTS

MASSACHUSETTS HIGHWAY DEPARTMENT

INTEROFFICE MEMORANDUM

TO: Diane Madden, Project Development

FROM: Robert Johnson, ^{RFO}EMS and Sustainability Unit

DATE: July 6, 2007

RE: South Weymouth Naval Air Station - Proposed Plan, Operable Unit 1, West Gate Landfill

A review of *Proposed Plan for Operable Unit 1 – West Gate Landfill Naval Air Station South Weymouth, Weymouth Massachusetts* (the Proposed Plan) was completed. The document summarizes the steps Navy took to arrive at a preferred clean-up approach for the West Gate Landfill site. The Proposed Plan is intended to comply with Section 177(a) of the Comprehensive Environmental Response, Compensation and Liability Act and with Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan.

According to the Proposed Plan, the Navy's preferred alternative for remediation of the West Gate Landfill is to construct a soil cover over the landfill, conduct long-term monitoring and enact institutional controls. Additional information indicates that construction of a traffic circle is proposed on the landfill land. The Proposed Plan does not include a geophysical evaluation of the landfill material for supporting a roadway or consider that roadway maintenance activities could threaten the integrity of a soil cap.

Based upon the information presented in the Proposed Plan, the West Gate Landfill may represent a source area for continued release of hazardous materials to the environment. This is evidenced by the presence of contaminants, such as volatile and semi-volatile organic compounds, polychlorinated biphenyls, and dioxins, in soil; as well as by the observation that metal drums and plastic buckets, which are commonly used to contain hazardous materials, are buried in the landfill.

It is recommended that the Navy reevaluate its preferred alternative and give further consideration to the alternative that calls for excavation of the landfilled materials for off-site disposal. Firstly, removal of the materials represents a major remedial milestone in that a source area would be eliminated. Secondly, the existing landfill material may be an inappropriate foundation for roadway construction, as well as the fact that a roadway will require maintenance activities (e.g. excavation for drainage and utility work), which may compromise efforts to enforce institutional controls over the land to protect the soil cap and contain contamination.

Please contact Robert F. Johnson of the Environmental Services at (617) 973-8409 with questions or concerns regarding this matter.

RFJ/rfj

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

**APPENDIX E.2: TRANSCRIPT OF PUBLIC HEARING ON THE PROPOSED PLAN FOR THE WEST
GATE LANDFILL**

Refer to attached copy.

NAVAL AIR STATION, SOUTH WEYMOUTH
WEST GATE LANDFILL
PUBLIC HEARING

Tuesday, June 19, 2007
Conference Center
Shea Memorial Drive
Naval Air Station
South Weymouth, MA
7:00 p.m.

Leavitt Reporting, Inc.

1207 Commercial Street, Rear
Weymouth, MA 02189
www.leavittreporting.com

Tel. 781-335-6791
Fax: 781-335-7911
leavittreporting@verizon.net

Hearings ♦ Conferences ♦ Legal Proceedings

1 you to do is just say your name, say the community
2 that you come from, and if you are here in a
3 professional capacity, just say what organization you
4 represent and then we'll let you read your statement.

5 If you have more than one comment or
6 statement, just read the first one first and then you
7 can go ahead and read the next one.

8 And we'll just take comments until
9 everyone has had an opportunity to have their
10 comments captured. Okay? So who would like to
11 start? Dave?

12 MR. BARNEY: I would like to start.
13 Good evening. My name is David Barney. I'm the BRAC
14 Environmental Coordinator for the Navy Program
15 Management Office Northeast.

16 The Navy is receiving oral comments
17 tonight on its Proposed Plan for the West Gate
18 Landfill.

19 This Proposed Plan was prepared in
20 accordance with the federal laws and presents the
21 Navy's proposed remedy for this Site which, after
22 careful consideration and evaluation of several
23 alternatives, is to engineer and construct a soil

1 cover over the landfill, conduct long-term monitoring
2 and implement institutional controls.

3 Tonight's meeting follows through on last
4 Thursday's informational meeting and discussions. At
5 the last meeting the Navy stepped through the process
6 that the Navy has followed to arrive at its
7 recommended remedy for this site.

8 Beginning in 1988 with a Preliminary
9 Assessment, and following through with a Site
10 Investigation, the Navy determined that further
11 investigation was warranted and so performed two
12 phases of a Remedial Investigation program to
13 determine the nature and extent of contamination as
14 well as assemble a Baseline Risk Assessment.

15 With the oversight from the EPA and
16 MASSDEP, the Navy determined that unacceptable risk
17 existed at this Site and that a remedial action was
18 necessary.

19 Remedial action objectives were developed
20 and a Feasibility Study was performed to identify,
21 compare, and contrast different potential remedies
22 for the Site.

23 The Navy evaluated six different

1 alternatives and evaluated each alternative with
2 respect to various criteria established by EPA to
3 compare each alternative's advantages and
4 disadvantages.

5 The criteria fall into three categories
6 of Threshold Criteria, Primary Balancing Criteria and
7 Modifying Criteria.

8 The Navy's preferred alternative includes
9 the following items: Conduct pre-design testing
10 within the landfill to properly design and construct
11 a soil cover; remove debris from the adjacent
12 wetlands and place on the landfill; clear the
13 landfill of trees, stumps, brush and exposed rubble
14 and debris and grading the Site; construct soil cover
15 that meets state and federal regulations; restore
16 wetland areas that have been disturbed during
17 construction; implement Institutional Controls to
18 control invasive activities on the landfill; conduct
19 long-term groundwater monitoring and site
20 maintenance; conduct a review of the Site every five
21 years.

22 The other alternatives that the Navy
23 evaluated were no action, limited action, construct a

1 flexible membrane liner cover over the Site, remove
2 and dispose materials off site, remove and dispose
3 materials at a newly-constructed landfill on site.

4 The Navy has selected the alternative to
5 construct a soil cover over the Site for the
6 following reasons: This remedy will be protective of
7 human health and the environment. It will comply
8 with all pertinent state and federal regulations. It
9 will provide long-term effectiveness. It is readily
10 implemented. It is a cost-effective and proven
11 technology. It offers the best balance among the
12 criteria used to evaluate the alternatives.

13 I strongly encourage people to review the
14 Proposed Plan and submit comments orally tonight or
15 in writing to Mr. Brian Helland, Remedial Project
16 Manager, at his address in Philadelphia, or to me by
17 July 6, 2007.

18 This date is different than indicated on
19 the Proposed Plan as the comment period has been
20 extended by previous requests. Thank you.

21 MR. FANCHER: My name is Terry Fancher,
22 Executive Director of South Shore Tri-Town
23 Development Corporation.

1 The comment I make tonight is identical
2 to the one last Thursday night but this will be for
3 the record.

4 South Shore Tri-Town Development
5 Corporation takes this opportunity to reiterate and
6 underscore its constant position regarding the
7 remedial program for the former South Weymouth Naval
8 Air Station.

9 In particular the Corporation
10 maintains that excavation and off-site removal of the
11 West Gate Landfill be performed in order to meet the
12 requirements of the Master Plan as approved by the
13 communities of Abington, Rockland, and Weymouth for
14 the redevelopment of the area.

15 In line with the approved Master Plan,
16 the first phase of the development project is
17 underway. An application has been made seeking
18 transfer of the remaining parcels of the site from
19 the U.S. Navy.

20 The Economic Development Conveyance
21 Application made to the U.S. Navy by our Corporation
22 reiterates the position to remove the West Gate
23 Landfill and provides the funding to do so. Thanks

1 for your attention to this matter.

2 MS. ROBERTS: Who else would like to make
3 a comment? You can either make a verbal comment or
4 submit something in writing. Anyone else? Mary?

5 MS. PARSONS: My name is Mary Parsons.
6 I'm from Rockland, and I was here last Thursday and
7 the comment that I made is that if this landfill is
8 completely removed, there is a proposed irrigation
9 well down-gradient of this landfill and it has been
10 suggested in the Draft Environmental Impact Report
11 for the state of Massachusetts that this irrigation
12 well could possibly be a future potable drinking
13 water well.

14 And my concern is you would have people
15 drinking that water which, as we know, there are
16 chemicals in the water, semi-volatile organic
17 chemicals, volatile organic chemicals in the water
18 that's in the groundwater.

19 I've been doing this for eleven years now
20 and as much as I'd like to have the landfill removed,
21 to hear the proponent SSTDC, LNR get up here and
22 state that they want this landfill removed, when
23 there are two other landfills that are located in the

1 town of Rockland on this base, that they fought
2 residents from Weymouth, Hingham, Abington and
3 Rockland who all are united and wanting these
4 landfills removed, I find it just ironic.

5 There's still -- It's still not too late
6 for SSTDC and LNR to step up to the plate and remove
7 the Small Landfill, but I just am concerned that they
8 want the West Gate Landfill removed so that in the
9 future the water is a potable drinking water supply.
10 Thank you.

11 MR. CUNNINGHAM: Hello. My name is James
12 Cunningham and I live in Weymouth and I'm a member of
13 the Weymouth Restoration Advisory Board. I'm a
14 member of the Restoration Advisory Board here on the
15 base.

16 First thing that I'd like to do is to --
17 I'm concerned that water in French's Stream could run
18 underneath the cap that is proposed and then wash out
19 or leach out pollutants into French's Stream and also
20 into the wetlands that are nearby.

21 I would like to see a physical impervious
22 barrier between the West Gate Landfill materials and
23 the wetlands and French's Stream so that no waters

1 would leach under and leach materials out. That is,
2 if the cap is being used.

3 If the materials are all completely
4 removed, that's another situation and Mary Parsons
5 knows more about that than I do.

6 The second thing is that I would prefer
7 that the Navy performs any remedial actions
8 concerning this landfill and not the developer.

9 The Navy has a good record of pollution
10 abatement here on the former South Weymouth Naval Air
11 Station, and the community has confidence in the
12 Navy's ability to remove these materials or at least
13 to control the pollution for the future.

14 The developer's systems of abatement are
15 unknown to us and we would like to see the Navy, who
16 we know is going to be ultimately responsible for
17 this, to be the one who puts the landfill cap on or
18 who does any other abatement work here at the West
19 Gate Landfill.

20 Taking this moment to also comment, I
21 would like to see such an impervious barrier as I
22 mentioned between the Rubble Disposal Area and the
23 Old Swamp River as well, because I'm also concerned

1 that water could leach underneath there and leach out
2 some chemicals into the Old Swamp River which, as is
3 well known, is the source of drinking water for
4 Weymouth, or at least a considerable source, not the
5 entire source. And that's all I've got to say.

6 MS. ROBERTS: Who's next?

7 MS. HILBERT: My name is Anne Hilbert
8 from Weymouth. I'd like to see the Navy take care of
9 it. I don't have any faith in Tri-Town or Service
10 Capital Management.

11 I've attended many meetings here and
12 they've been less than genuine with us, and I know
13 and I've read that out in San Francisco, down in
14 Miami, and every place that they have been, they have
15 not told the truth, so I don't want to leave it up to
16 them. Thanks.

17 MS. RAKERS: Hi. I'm Joanne Rakers from
18 Weymouth, just a resident. I would like the Navy to
19 clean it up totally if they could, but I would like
20 to know why all of a sudden LNR wants it cleaned
21 where the other three are just as bad that run into
22 Swamp River and into our drinking water.

23 I just read a study recently on O4 that

1 states there are PBC's all over that water into
2 Whitman's Pond. By capping the other two, it's still
3 not going to work. I just hope you clean the whole
4 thing up.

5 MS. ROBERTS: Anyone else? Come on up.

6 MR. SMART: Hi, my name is Michael Smart.
7 I'm from the Weymouth Town Council. I live here in
8 Weymouth.

9 I respectfully disagree with the Navy's
10 choice and this election for the soil cap. I've been
11 here not quite as long as Mary but five or six years
12 attending meetings of the RAB, every Record of
13 Decision coming up, and having discussions with you,
14 David, regarding complete removal. For the last five
15 or six years I think that we've had those
16 conversations, and I'll say it again.

17 Prior to 1939 that material was not
18 present on the base, and why should Weymouth be stuck
19 with it when the Navy is leaving after they've
20 decided to close the base?

21 I think the best decision would be to
22 completely remove the soil and take it off the site.
23 Why should we be stuck with it after you're gone and

1 the possible chance of it coming back or leaching
2 into the wetlands or something like that, but I would
3 respectfully request the complete removal of all the
4 materials and soil off site. Thank you.

5 MS. ROBERTS: Who's next?

6 MS. HILBERT: I'd like to also mention --
7 Anne Hilbert. I'd like to also mention that Tri-Town
8 and Service Capital Management, they didn't want to
9 take a bond out for people who live on the outside
10 perimeter of the base. Only on the base. That
11 speaks volumes.

12 MS. ROBERTS: Any other comments,
13 statements?

14 MR. COTTER: Yes. My name is Bill Cotter
15 and I'm from Marshfield. Former resident of
16 Weymouth. I'm for removing the soil, recycling it,
17 and putting it back where it was. That's the option
18 I would select.

19 Regardless of that, whichever option is
20 determined in the Record of Decision, I believe that
21 developers large and small will look at this
22 contaminated area and it will put a bit of a cloud on
23 developers selecting to build on this project.

1 The location of this West Gate Landfill
2 in close proximity to the transportation hub, which
3 is the hub of the project, unnecessarily exposes
4 pedestrians and vehicle traffic to contamination
5 whether it's there now or in the future.

6 Additionally, the close proximity of this
7 landfill to French's Stream, which is downstream from
8 the landfill, has a potential for leaching into that
9 stream.

10 Again, I would prefer -- the preferred
11 method would be to remove the soil, clean it, recycle
12 it, and put it back where it was. Thank you.

13 MS. ROBERTS: Anyone else?

14 MS. HILBERT: I don't know if this
15 belongs but I'll say it anyway. Anne Hilbert. As
16 you know, I've attended many of these meetings and
17 when we -- As a matter of fact, we had a court case
18 on this because of the contamination.

19 Tri-Town and Service, they were there in
20 court with their ten lawyers. They were less -- I
21 mean, they out and out lied in court. They're not
22 concerned.

23 Right now they are concerned because

1 they're negotiating to buy the land and all of a
2 sudden now they want this all cleaned up. When did
3 they change their tune?

4 How can we as people believe what they
5 say? Because everything they say, if you go to the
6 next page, it's something different.

7 MS. ROBERTS: Any other comments before
8 we wrap up?

9 MR. CUNNINGHAM: James Cunningham again.
10 The Navy proposes to put a cap, I think it's a
11 semipermeable cap, on the top of the landfill so that
12 the water does not rapidly seep through the materials
13 and leach out the bottom.

14 That sounds like a reasonable solution if
15 the materials in the landfill are not polluted and
16 are not full of materials which would be water
17 solvent and -- water soluble and then go out into
18 French's Stream and the wetland.

19 What I'd like to do is to have some sort
20 of guarantee from the Navy or the person who's doing
21 the abatement work that the materials in the landfill
22 are not hazardous to human and animal health or even
23 plant health, so that if water were to leach through

1 the landfill materials, there would be no pollution
2 problem that would affect people downstream or in the
3 wetlands or around that West Gate Landfill.

4 I don't know how they would arrive at
5 that without actually digging the stuff up and seeing
6 what's in there, but certainly the results of all the
7 testing that they had should be published along with
8 the proposed solution. Thank you.

9 MR. COTTER: My name is Bill Cotter and
10 I'm from Marshfield. If the Proposed Plan from the
11 Navy goes forward, there will be a covenant regards
12 to residential development on that site.

13 I'm curious to know if -- There are no
14 plans from Tri-Town, LNR, at this time to build in
15 the future but that possibly could change.

16 Are there restrictions on any development
17 on that particular West Gate Landfill? And if there
18 are not, I request a covenant be set up so there
19 cannot be any development going forward.

20 MS. ROBERTS: Come on up, Mary.

21 MS. PARSONS: Is the Navy's alternative
22 Alternative 3, construct a soil cover over the site?

23 MR. BARNEY: Yes.

1 MS. PARSONS: I'm Mary Parsons from
2 Rockland. In your Alternative 3 it says, in
3 addition, land use controls such as constructing a
4 fence and posting warning signs would be considered
5 optional components to protect the landfill cap from
6 any intrusive activities.

7 When I was here Thursday I did mention
8 that I would like to see a fence around this landfill
9 if it's capped because of the fact that you currently
10 have dirt bikes and quads racing around on the base.
11 Is there a possibility to have this fenced off?

12 MR. BARNEY: It's an optional element of
13 the remedy. So yes, it would be possible to have it
14 fenced off.

15 MS. PARSONS: Does DEP and EPA concur
16 with that?

17 MS. ROBERTS: Actually, Mary, they're not
18 allowed to respond but you can ask the question.

19 MS. PARSONS: Thank you.

20 MR. CUNNINGHAM: James Cunningham again.
21 I concur with Mary Parsons that it would be better if
22 a fence were put around this to keep people from
23 destroying the cap or getting into the polluted

1 material. Thank you.

2 MS. ROBERTS: Any other comments before
3 we wrap up?

4 MR. HESHION: My name is Chuck Heshion.
5 I'm from Rockland. A cap is not a fix. It's a
6 short-term solution. It leads to too many
7 opportunities for long-term violation that it could
8 break, it could leach.

9 I don't know what the impact is on the
10 other landfills that I've heard about tonight, but
11 there should be a plan in place for long-term
12 monitoring on all of them.

13 I have not seen anything for overburden
14 groundwater wells in the vicinity or any
15 potentiometrics for groundwater flow.

16 Especially my concern is French's Stream.
17 That brook just has too much of an impact on other
18 communities aside from Weymouth. And again, I'm
19 looking at it from, selfishly, Rockland. But long
20 term I do not see a cap as a fix. It is not a
21 solution. Thank you.

22 MS. ROBERTS: Thank you for the comments.
23 Any others?

1 MS. HILBERT: Anne Hilbert from Weymouth.
2 I'd just like to remind people that out in
3 San Francisco, ten months went by and all the
4 mandated rules and regulations that LNR was supposed
5 to follow they didn't follow, and the city and the
6 county enforced some of these powers.

7 This happened out at the Hunter Point
8 Naval Shipyard in San Francisco. They had to get
9 after LNR. Now, they still haven't done all that
10 they're supposed to do. How are we supposed to
11 believe them? I want the government to take care of
12 it.

13 MS. RAKERS: Joanne Rakers from Weymouth
14 again. Last Thursday when we talked to Dave and
15 everybody, if you capped it that would mean that
16 nothing could be really built on that area, correct?

17 MS. ROBERTS: Joanne, he can't answer
18 your question.

19 MS. RAKERS: Okay. I think the only
20 reason why LNR all of a sudden wants to clean this
21 West Gate landfill is because they want to put water
22 through it, and there's no other way to put water
23 into this base from MWRA except for that area, and

1 that's the only reason why they want that to be
2 cleared, where all the others were just capped and
3 not taken care of.

4 MS. ROBERTS: Any other comments before
5 we close?

6 MS. PARSONS: One more question. What is
7 the Navy's monitoring plan and should this cap, with
8 age, start to deteriorate, would the Navy be back to
9 recap it?

10 MS. ROBERTS: Okay. He can't answer
11 that. It's for the record.

12 MS. PARSONS: Then there's another one
13 that comes with that.

14 MS. ROBERTS: State your name for the
15 record.

16 MS. PARSONS: Mary Parsons. As we all
17 know, every ten, 20 years DEP's regulations can
18 change concerning a landfill cap. So my question is
19 who's going to be responsible for this.

20 Is the town of Rockland going to be
21 responsible for the two landfills that sit in our
22 town borders and is the town of Weymouth going to be
23 responsible for this landfill which sits in their

1 borders?

2 MS. ROBERTS: Thank you. Anyone else?
3 Okay. This officially ends the public hearing for
4 the Proposed Plan of the West Gate Landfill. Thank
5 you, everyone, for coming and have a great evening.
6 (Whereupon at 7:29 p.m. the hearing concluded.)

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

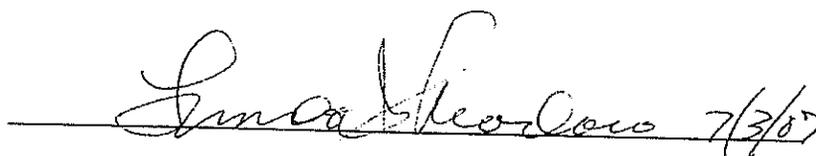
22

23

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

C E R T I F I C A T E

I hereby certify that the foregoing 21 pages contain a full, true and correct transcription of all my stenographic notes to the best of my ability taken in the above-captioned matter held at the Conference Center at the Naval Air Station in South Weymouth on Tuesday, June 19, 2007, commencing at 7:00 p.m.


_____ 7/3/07

Linda J. Modano, Registered Professional Reporter

My commission expires June 2, 2011

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

APPENDIX F – ARAR TABLES

| Media | Requirement | Requirement Synopsis | Action to be Taken to Attain Requirement | Status |
|------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Federal – Location Specific | | | | |
| Wetlands | National Environmental Policy Act (NEPA) Executive Order (EO) 11988, 40 CFR Part 6, Appendix A | These regulations contain the procedures for complying with the executive order on wetland protection (EO 11990). Under this order, federal agencies are required to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance natural and the beneficial values of wetlands. Requires that no remedial alternative adversely affect a wetland if another practicable alternative exists. If no such alternative exists, impacts from implementation must be mitigated. | Appropriate federal agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of the action. Remedial activities would be scheduled and designed to minimize harm to the wetlands to the extent possible, and any adverse impacts would be mitigated through wetland restoration. | Applicable |
| Wetlands | Fish and Wildlife Coordination Act Regulations 33 CFR Part 320.3 | Requires that the U.S. Fish and Wildlife Services and National Marine Fisheries Service be consulted prior to structural modification of any stream or other water body (i.e., wetland). It also requires adequate protection of fish and wildlife resources. Requires consultation with state agencies to develop measures to prevent, mitigate, or compensate for project-related losses to fish and wildlife. | Actions taken would minimize adverse impacts to fish and wildlife. Relevant federal and state agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of the action. | Relevant and Appropriate |
| Wetlands | US Army Corps of Engineers, New England District (USACE-NAE) Mitigation Guidance | This guidance provides measures depicting <i>Mitigation Special Conditions, Sample Monitoring Report and Checklist for Review of Mitigation Plan.</i> | Because this action may cause wetland disruption, this guidance would be implemented during restoration efforts. | To Be Considered |
| Floodplains | NEPA Floodplain Management – EO 11988, 40 CFR Part 6, Appendix A | Appendix A sets forth policy for carrying out the executive order on Floodplain Management (EO 11988). EO 11988 requires that a cleanup in a floodplain not be performed unless a determination is made that no practicable alternative exists. If no practicable alternative exists, potential harm must be minimized and action taken to restore and preserve the natural and beneficial values of the floodplain. | If a remedial alternative consists of an action in the floodplains of the French Stream, these regulations would be triggered. Appropriate federal agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of the action. Remedial activities would be scheduled and designed to minimize harm to the flood plains to the extent possible. | Applicable |
| Water | Clean Water Act (CWA) 404 (b) (1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material | Section 404 of the CWA regulates the discharge of dredged or fill material into U.S. waters, including wetlands. The purpose of section 404 is to ensure that proposed discharges are evaluated with respect to impacts on the aquatic ecosystem. No activity that adversely affects a wetland is permitted if a practicable alternative that has less effect is available. If there is no other practicable alternative, impacts must be mitigated. | Remedial activities could involve dredged or fill material discharge to wetlands. Under this alternative, there is no practical alternative to this discharge; however any adverse impacts would be mitigated. | Applicable |

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

| Media | Requirement | Requirement Synopsis | Action to be Taken to Attain Requirement | Status |
|-------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Federal – Location Specific(cont.) | | | | |
| Water | Rivers and Harbors Act Section 10, 33 U.S.C. 403, 33 CFR Parts 320- 323 | Section 10 of the Rivers and Harbors Act is implemented through a federal regulatory program administered by the U.S. Army Corps of Engineers (USACOE). It covers dredging, filling, excavation and placement of structures in all wetlands, tidal waters and navigable freshwaters. | Actions taken would minimize adverse impacts to the nearby French Stream and comply with the environmental standards in 33 CFR Parts 320-323. Relevant federal and state agencies would be contacted and allowed to review the proposed work plan for the remedial action prior to implementation of any action that may impact the stream. | Relevant and Appropriate |
| State – Location Specific | | | | |
| Wetlands | MA Wetland Protection Regulations 310 CMR 10.00 | These regulations govern activities in freshwater wetlands, 100-year floodplains, and 100-foot buffer zones beyond such areas. Regulated activities include certain types of construction and excavation activities. Performance standards are provided and include evaluating the acceptability of various activities. The MA Wetland Protection program also is used to coordinate with the <i>Massachusetts Natural Heritage and Endangered Species Program</i> regarding the presence of rare wetlands wildlife, such as the spotted turtle (state-listed species of special concern). If a proposed project is determined to alter a resource area which is part of the habitat of a state-listed species, MAWPA regulations (310 CMR 10.59) state that this project "shall not be permitted to have any short or long term adverse effects on the habitat of the local population of this species." | Because remedial activities may include construction in wetlands, they would be performed in compliance with the performance standards of these requirements. Any disturbance of a wetland would be restored. | Applicable |
| Endangered species | MA Endangered Species Act Regulations (MESA) 321 CMR 10.00 | These regulations prohibit the "taking" of any rare plants or animals listed as Endangered, Threatened, or Special Concern by the MA Division of Fisheries & Wildlife. Northern Harrier, which is a threatened species, have been observed in the vicinity of the site. They also protect designated "significant habitats." "Significant habitat" can be designated for Endangered or Threatened species populations after a public hearing process. | Environmental surveys would be performed to identify habitats and evidence of endangered species. Precautions to prevent impacts to identified habitats and species would be imposed during site activities. | Applicable |
| Federal – Action Specific | | | | |
| Waste | EPA OSWER Publication 9345.3 – 03 FS | Management of wastes generated during remedial activities must ensure protection of human health and the environment | Because this alternative involves groundwater monitoring, wastes that may be produced during groundwater sampling would be managed in accordance with this guidance. | To Be Considered |
| Landfill | Presumptive Remedy for CERCLA Municipal Landfill Sites PB93-963339, September 1993 | Guidance for complying with federal and state closure requirements, including cover material options and other site controls. | Because landfill capping would be implemented, this TBC would be achieved. | To Be Considered |

Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices

| Media | Requirement | Requirement Synopsis | Action to be Taken to Attain Requirement | Status |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Federal – Action Specific (cont.) | | | | |
| Landfill | Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills PB96-963314, December 1996 | Guidance for applying the municipal landfill presumptive remedy guidance (PB93- 963339) to military bases where domestic, industrial, and other types of wastes may have been disposed of in a designated area or landfill. | Because landfill capping would be implemented, this TBC would be achieved. | To Be Considered |
| Landfill | PCB Megarule and TSCA Regulations 40 CFR Part 761.61(a)(7) | Capping requirements that include permeability, sieve, liquid limit, and plasticity. | Cap would be designed to comply with this ARAR. | Applicable |
| Surface Water | Federal Ambient Water Quality Criteria (AWQC) 33 USC 1314(a); 40 CFR Part 122.44 | Federal AWQCs include (1) criteria for protection of human health from toxic properties of contaminants ingested through drinking water and aquatic organisms, and (2) criteria for protection of aquatic life. | Contaminant concentrations in French Stream and the associated wetlands would be measured during monitoring to determine whether water quality is being impacted by site activities, and to ensure that AWQCs are being met. | Relevant and Appropriate |
| State – Action Specific | | | | |
| Landfill | MA Solid Waste Management Landfill Final Cover Systems 310 CMR 19.112 | These are requirements for landfill final cover systems, including the performance standards and design criteria for cover system components. | This remedial alternative would meet the design and performance standards and include the cover system components outlined in these requirements. | Applicable |
| Landfill | MA Solid Waste Management Storm Water Controls 310 CMR 19.115 | These are requirements for storm water controls based on performance standards and design criteria. | This remedial alternative would meet the design and performance standards of these requirements. | Applicable |
| Landfill | MA Solid Waste Management Environmental Monitoring Requirements 310 CMR 19.132 | These are regulations for surface water and groundwater monitoring, including frequency, quality, reporting, analytical parameters, and mitigation protocols. Also includes leak detection, and supplemental systems (e.g., gas and leachate control) as necessary. | This alternative includes long-term monitoring. Gas and leachate control are not considered practical since the refuse is located within the saturated zone. This remedial alternative would meet the surface and ground water monitoring requirements of these regulations. | Applicable |
| Landfill | MA Solid Waste Management Landfill Closure Requirements 310 CMR 19.140 | These are regulations related to the closure of landfills. | This remedial alternative would meet the substantive closure requirements of these regulations. | Applicable |
| Landfill | MA Solid Waste Management Landfill Post-Closure Requirements 310 CMR 19.142 | These are regulations for site maintenance and monitoring during the post-closure period to ensure the integrity of the closure measure as well as to detect and prevent any adverse affects to human health and the environment. | This remedial alternative would meet the substantive post-closure requirements of these regulations. | Applicable |
| Surface Water | MA Surface Water Quality Standards 314 CMR 4.00 | These regulations limit or prohibit discharges of pollutants to surface waters to ensure that the surface water quality standards of the receiving waters are protected and maintained or attained. | Contaminant concentrations in French Stream and the associated wetlands would be measured during monitoring to determine whether or not water quality is being impacted site activities, and to ensure that state water quality standards are being met. | Relevant and Appropriate |

**Record of Decision
Naval Air Station South Weymouth, Massachusetts
Appendices**

| Media | Requirement | Requirement Synopsis | Action to be Taken to Attain Requirement | Status |
|----------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------|
| State – Action Specific (cont.) | | | | |
| Water | MA Standards for Analytical Data for Remedial Response Action Bureau of Waste Site Cleanup Policy 300-89 | This policy describes the minimum standards for analytical data submitted to the MADEP. | Because this remedial action includes a long-term monitoring, the analytical methods provided in this policy would be considered. | To Be Considered |
| Air | MA Air Pollution Control Regulations 310 CMR 7.09 | These regulations establish the standards and requirements for air pollution control in the Commonwealth. Section 7.09 contains requirements relevant to dust, odor, construction and demolition. | Any emissions of fugitive dust will be managed through engineering and other controls during remedial activities. | Applicable |
| Federal – Chemical Specific | | | | |
| Waste | PCB Megarule and TSCA Regulations 40 CFR Part 761.61 | Regulations governing the management of PCB remediation waste. Applicability determined by the type of PCB-impacted material encountered, total PCB concentration, source, source concentration, and release date. Cleanup levels derived using a self-implementing, performance-based or risk-based approach. | This remedial alternative would meet the cleanup standards of this regulation. | Applicable |